

**Para Fire
April 7, 2007
Columbia National Wildlife Refuge
BURNED AREA EMERGENCY STABILIZATION PLAN**



AGENCY/UNIT: U.S. Fish and Wildlife Service, Columbia National Wildlife Refuge

LOCATION: Adams and Grant County, Washington

DATE: April 20, 2007

PREPARED BY: Mid-Columbia NWR Complex ESR Team

Submitted By: _____ Date: _____
Gregory M. Hughes, Project Leader

BURNED AREA EMERGENCY STABILIZATION PLAN

Para Fire

Columbia National Wildlife Refuge

REVIEW AND APPROVAL -- US Fish and Wildlife Service

I. EMERGENCY STABLIZATION PLAN CONCURRENCE

Concur

Concur with Revision

Disapproved

Explanation for Revision or Disapproval:

Gregory M. Hughes, Project Leader, Mid-Columbia NWR Complex

Date

II. Regional Fire Management Coordinator: Concurrence that this plan fits the technical definition for use of Burned Area Emergency Stabilization funding and policy guidelines.

Regional Fire Management Coordinator, Region 1, USFWS

Date

III. EMERGENCY STABILIZATION PLAN APPROVAL

Concur

Concur with Revision

Disapproved

Explanation for Revision or Disapproval:

Regional Director, Region 1

Date

EXECUTIVE SUMMARY

Introduction

This plan has been prepared in accordance with provisions contained within Chapter 620 DM 3- Burned Area Emergency Stabilization and Rehabilitation, and the Columbia National Wildlife Refuge Fire Management and Integrated Pest Management Plans. This plan provides burned area emergency stabilization (ES) recommendations for all lands burned within the Para Fire perimeter administered by the U.S. Fish and Wildlife Service (Service). The primary objectives of the Para Fire Burned Area Emergency Stabilization Plan are:

- To prescribe cost effective post-fire stabilization measures necessary to protect human life, property, and critical natural and cultural resources.
- To promptly stabilize and prevent further degradation to affected resources on lands within the fire perimeter and downstream impacted areas and mitigate damages caused by fire suppression operations in accordance with approved land management plans and policies, and all relevant federal, state, and local laws and regulations.

Emergency Stabilization

This plan addresses the emergency stabilization and fire suppression impacts/fire related damages to lands administered by the Service on the Columbia National Wildlife Refuge (Refuge). Based upon field assessments conducted by Mid-Columbia National Wildlife Refuge Complex (Complex) staff on April 17, 2007, an analysis was conducted to include: suppression impacts, vegetation impacts, and fire effects on known threatened and endangered (T&E) species and their habitats. An archeological assessment is being coordinated with the Regional Office and no ground disturbing activities will take place until all cultural clearances are obtained. The wildlife biologist/vegetation specialist evaluated and assessed fire damages and suppression impacts to vegetative resources, including T&E species, and identified values at risk associated with vegetative losses. The wildlife biologist conducted an assessment of T&E species, and other species of management concern to the Refuge.

Individual resource Burned Area Assessment Reports produced by these specialists are in Appendix I. The individual treatment specifications, including the effectiveness monitoring identified in the assessments, can be found in Part F. A summary of the costs is in Part E. Appendix II contains the National Environmental Policy Act (NEPA) compliance documentation summary. Appendix III contains photo documentation; Appendix IV contains Supporting Documentation; and Appendix V contains the ES Plan maps respectively.

Fire Background

The Para Fire, Number 13510-9141-DB17, was reported on April 7, 2007 at approximately 1240 hours by Complex fire personnel. The fire was a result of an escaped private controlled burn being conducted by Jake Para (inholding land-owner). The controlled burn was never communicated to any fire and/or refuge management personnel. This has happened several times in the last 15 years in this same area, resulting in cumulative losses in native vegetation, in particular native riparian shrubs and trees (e.g., Wood's rose, currants, willows). The fire demonstrated moderate to high fire intensity on approximately 100% of the fire area on the Refuge. The Para Fire burned approximately 10.4 acres of native wetland/riparian and upland (sage-steppe and greasewood-steppe with native bunchgrass) areas, 8.2 acres of which was on Refuge property. The fire heavily damaged the boundary fence (double line, 5 strand barbed wire) between Para's property and the Refuge. The fire burned to within 100 feet of the Bluebird Campground, an improved camp area frequented by approved guests of the Refuge.

Resources from Grant county (engines and water tender), Adams county (engines and water tender), and the Complex (engines 802 and 852) all responded to the incident. Ground disturbance, caused by engines driving the perimeter of the fire, was minimal in area but moderately intensive due to the soggy nature of the wetland/riparian substrate. This disturbance compacted soils, formed deep ruts, and negatively impacted native vegetation and micro-biotic crusts. The Para Fire was contained at approximately 1400 hours, and declared controlled (out) at 1626 hours.

The Complex ES Team, tasked with evaluation of short and long-term emergency stabilization needs, developed this plan to address the following issues:

- Natural and cultural resource values impacted by the fire or fire suppression actions.
- ES requirements established by Federal law, policies, and relevant Department of the Interior resource management mandates.
- Treatment requirements established by state laws, policies, and regulations.
- Implementation of treatments in a timely manner, prior to damaging winds and rains.

Fire Damages and Threats to Human Safety and Natural and Cultural Resources

The Para Fire burned approximately 8.2 acres on the Refuge and 2.2 acres of a private inholding (Jake Para's property; Appendix V). Fire suppression impacts included wheel track trails at the fire perimeter and through the fire site, and the potential spread of noxious weeds, including Kochia, Canada thistle, and Russian olive.

The entire fire has been mapped by the BAER Team for burn severity. Within the fire approximately 5 percent of the fire area is classified as low to moderate burn severity and 95 percent is classified as moderate to high burn severity (100% of the fire area on the Refuge is classified as moderate to high burn severity). This attests to the fires' slow spread through moderate fuels (cattails and bulrush, vegetative debris) and moderate to high residency times within the debris and shrubs. Most of the soils examined were not water repellant. Therefore, an overall water yield increase due to the fire is expected to be minor and not exacerbate flooding events.

The loss of the vegetation cover exposed silt loam and very fine sandy loam soils to erosion. Nearly all soil types (the Umapine Silt Loam and the Prosser-Starbuck Very Rocky Very Fine Sandy Loams/Starbuck-Bakeoven-Rock Outcrop Complex) within the burn area have a fairly high risk of wind erosion (Appendix V); however, the wetter areas within the riparian/wetland area will likely be more stable than the drier and upland areas.

The ESR Team conducted field surveys after the fire to identify impacts and compile the following recommendations for treatments of affected lands:

Emergency Stabilization Treatments:

- Conduct cultural resource damage assessment of known/documented sites
- Control unburned noxious weeds and non-native invasive plant species
- Protect ecological integrity of native shrub-steppe plant communities through native grass and shrub/tree planting
- Monitor planting effectiveness for site stabilization
- Control spread of noxious weeds and non-native invasive plant species

Specifications were developed for all actions meeting the requirements for Emergency Stabilization (ES) funding.

Other resource impacts assessed as a result of the Para Fire included a review of cultural sites impacted, and impacts to wildlife and vegetation resources.

An archeological inventory will be conducted on all suppression lines and known cultural sites within the fire area. Further cultural resource damage assessments may be required prior to implementation of ground disturbing stabilization actions.

Federal T&E plant species listed as occurring in or having habitat within Adams and Grant County have not been previously documented within the fire perimeter. Listed wildlife species existing within and/or potentially using the fire area include 1 federal candidate species (Washington ground squirrel), 1 species of tribal importance (Mule deer), 3 state candidate species (Sage thrasher, Black-tailed jackrabbit, Striped whipsnake), 1 state monitor species (Night snake), and 5 federal species of concern, including Ferruginous hawk and Long-billed curlew (Appendix V).

Vegetation resources provide valuable wildlife forage and habitat, watershed protection, effective competition against invasive non-native plant species, and comprise a visually pleasing landscape. Complete consumption of the above-ground vegetative resources was observed on approximately 95% of the fire area on the Refuge (the remaining 5% being heavily damaged but still standing), with approximately 90% of the native shrubs and trees being killed. The primary vegetative concerns are the recovery of the native riparian shrub/tree plant community (Wood's rose, currants, willows, and cottonwood) and control of non-native species and noxious weed invasion.

This BAER Plan is the initial funding request for Emergency Fire Stabilization funds. The Emergency Fire Stabilization funding for this plan is for one year from the date of fire containment. At the conclusion of the funding period, a final Accomplishment Report will be due to the approval authority. The Accomplishment Report will document the funding received (initial and supplemental funding), treatments installed, the effectiveness of the installed treatments, and the results of monitoring activities.

Fire Suppression Treatments:

- Inventory vehicle tracks for potential archeological sites prior to treatments.
- Rehabilitate vehicle tracks (Appendix V).

Emergency Stabilization:

- Noxious weed and invasive species control to protect the ecological integrity of the site.
- Ecological stabilization through planting of native species to prevent the re-establishment and spread of non-native invasive plants (Appendix V).

The following statements in the approved Fire Management Plan direct the development of the proposed burned area funded through the Burned Area Stabilization and Rehabilitation funds:

- Prior to the completion of an ESR, treatments may be initiated by the Incident Commander, FMO, or Project Leader. A set of standard treatments for slopes, channels, and roads are pre-approved and listed in the Fire Management Handbook on pg. 5.2-1. ESR plans for each fire will be reviewed by the Fire Analysis Committee. A final plan will be submitted to Region for establishing an account.
- Monitor, protect, and recover native plants and animals that are federally or state listed and any other species that are in any other way considered sensitive.

BURNED AREA EMERGENCY STABILIZATION PLAN

Para Fire-Columbia National Wildlife Refuge

PART A FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	Para Fire	Jurisdiction	Acres
Fire Number	13510-9141-DB17	<u>USFWS, Columbia NWR</u> <u>Private (inholding)</u>	8.2
Agency Unit	US Fish and Wildlife Service Columbia National Wildlife Refuge		2.2
Region	Region 1		
State	Washington		
County(s)	Adams, Grant		
Ignition Date/Manner	April 7, 2007 Human-caused / Agricultural Burning		
Zone	Pacific Northwest		
Date Contained	April 7, 2007		
Date Controlled	April 7, 2007	TOTAL ACRES	10.4 ac.

PART B NATURE OF PLAN

Type of Plan (check one box below)

Initial Submission	X
Update and Revising Initial Submission	
Supplying Information For Accomplishment To Date On Work Underway	
Different Phase Of Project Plan	
Final Report (To Comply With The Closure Of The EFR Account)	

EMERGENCY STABILIZATION OBJECTIVES

- Locate and stabilize severely burned conditions that pose a direct threat to human life, property, or critically important cultural and natural resources.
- Recommend post-fire emergency stabilization prescriptions that prevent irreversible loss of natural and cultural resources.
- Conduct immediate post-burn reconnaissance for fire suppression related impacts to threatened and endangered (T&E) species, and cultural sites.
- Develop monitoring specifications designed to document relative effectiveness of emergency stabilization treatments or whether additional emergency stabilization treatments are required.

BURNED AREA EMERGENCY STABILIZATION PLAN

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PART C - TEAM ORGANIZATION

BAER TEAM MEMBERS

POSITION	TEAM MEMBER / AGENCY
Team Leader	Kevin Goldie, Mike Ritter USFWS
Operations	Robert Little, David McDonald, USFWS
Vegetation	Heidi Newsome, Randy Hill, Kevin Goldie, USFWS
Soil and Watershed	Kevin Goldie, Heidi Newsome, Randy Hill, USFWS
Wildlife	Kevin Goldie, Randy Hill, Heidi Newsome USFWS
Cultural	Regional Office, Portland
Environmental Compliance	Heidi Newsome, Randy Hill, Kevin Goldie, USFWS
GIS	Kevin Goldie, USFWS
IT / Documentation	Heidi Newsome, Kevin Goldie, Randy Hill, USFWS

PRIMARY SUPPORT PERSONNEL

Supervisory Wildlife Refuge Manager- Administration, Biology, Law Enforcement	Mike Ritter, USFWS
Project Leader	Greg Hughes, USFWS
Outdoor Recreation Planner	Paula Call, USFWS

BURNED AREA EMERGENCY STABILIZATION PLAN

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**PART D - SUMMARY OF APPROVAL AUTHORITIES
US FISH AND WILDLIFE SERVICE**

ACTIVITIES REQUIRING NATIONAL OFFICE APPROVAL (Emergency Stabilization Requests (Charged to ES).	Cost
#1, Non-native Invasive Species Control – Integrated Pest Management	\$7,896
#2, Non-native Invasive Species Control – Native Plantings	\$18,737
#3, Exclusion Fences	\$4,379
#4, Effectiveness Monitoring	\$4,046
SUBTOTAL	
	\$35,058

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PART E - SUMMARY OF ACTIVITIES

The SUMMARY OF ACTIVITIES table identifies emergency stabilization costs charged or proposed for funding from fire suppression emergency stabilization funding sources. The total cost of the treatments excluding the costs absorbed by the fire (fire crew, labor and associated overhead) is displayed as either Fire Suppression Rehabilitation (**SR**), Emergency Stabilization (**ES**), Rehabilitation (**R**), or Agency Operations/Other (**OP/O**).

PART E – US FISH AND WILDLIFE SERVICE

No.	TREATMENT SPECIFICATION	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
					SR	ES	R		
#1	Non-Native Invasive Species Control- Integrated Pest Management	Acres	\$821	8		ES		P	\$7,896
#2	Non-native Invasive Species Control – Native Plantings	Acres	\$2216	8		ES		C, P	\$18,737
#3	Exclusion Fences	Feet	\$4	1144		ES		P	\$4,379
#4	Effectiveness Monitoring	Acres	\$362	8		ES		P	\$4,046
								TOTAL	\$35,058

BURNED AREA EMERGENCY STABILIZATION PLAN

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PART F - SPECIFICATION

SPECIFICATION TITLE:	Non-native Invasive Species Control – Integrated Pest Management	JURISDICTIONS:	USFWS-CNWR
PART C: LINE ITEM:	#1 – Non-native Invasive Species Control – Integrated Pest Management	FISCAL YEAR:	2007, 2008
ESR REFERENCE #:	8.3.2.1 Non-native Invasive Plant Control	SPECIFICATION TYPE:	F, ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Control noxious weed infestations within the Para Fire area prior to seed-set and maturation. Control new infestations in spring of 2008. Current weed species observed include Kochia (<i>Bassia scoparia</i>), Canada thistle (<i>Cirsium arvense</i>), Russian olive (<i>Eleagnus angustifolia</i>), Reed canarygrass (<i>Phalaris arundinacea</i>), Bull thistle (<i>Cirsium vulgare</i>), Cheatgrass (<i>Bromus tectorum</i>), Russian thistle (<i>Salsola kali</i>), and Asparagus (<i>Asparagus spp.</i>). Utilize integrated pest management techniques (herbicides, biological, mechanical and cultural control methods) as appropriate to prevent the spread and establishment of noxious weeds within the fire area.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Control all visible noxious weed populations along the tracked vehicle trails and disturbed sites within the fire area. Control non-native invasive species, such as Canada thistle and cheatgrass, within the fire perimeter to decrease competition for native species.
C. Provide and Number Detailed Design/Construction Specifications
1. Control noxious weeds as identified in USFWS monitoring surveys.
2. Recommended herbicide for Kochia, thistles, reed canarygrass, and asparagus is AquaNeat (glyphosate, aquatic formulation) @ 2% solution with WEEDestroy AM-40 (2,4-D Amine, aquatic formulation) @ 1.5% solution in spot treatment. Recommended herbicide for Russian olive control is Habitat® (imazapyr) @ 1% solution and Garlon 3A® (triclopyr) @ 1.5% solution for spot treatments (foliar). Recommended herbicide for cheatgrass control is Roundup PRO® (glyphosphate). Application at low concentrations (3.5 oz.-1 pint/acre) during late winter-early spring will minimize damage to native species. Surfactant will be required as an adjuvant to these weed treatments.
3. Roadside and small infestations will be treated by backpack spraying or truck/ATV mounted sprayer. Non-native invasive species control within interior of fire area will be treated using a backpack sprayer or ATV mounted sprayer.
4. Winds in the area to be sprayed should be less than 10 MPH (constant).
5. Applicator will be state certified.
6. Locate, map, and document (using photography, topographic maps, and Global Positioning System--GPS--technology), new weed occurrences within burned area. Document percent control or kill of noxious weeds.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
Protect the ecological integrity and site productivity of riparian and shrub-steppe plant communities within the CNWR in accordance with established management plan guidelines.
E. Describe Treatment Effectiveness Monitoring
Spot checking of noxious weed sites to ensure control methods are meeting management objectives. A staff person from the Complex will visit sites controlled bi-weekly after initial treatment; this is especially important for weed populations that are sprayed to ensure effectiveness of herbicide application. If both spring and summer/fall applications are used then visits will occur during both these times.

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).)	COST/ITEM
Maintenance Workers (2) x \$30/hour x 40 hours per treatment x 2 treatment periods x 1 year (Backpack sprayer)	\$4,800
Wildlife Biologist (GS-11) x \$ 33/hour x 20 hours x 2 treatment monitoring periods x 1 year – treatment monitoring	\$1,320
TOTAL PERSONNEL SERVICE COST	\$6,120

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
Misc. Spray nozzles, hoses, pumps, backpack sprayer, equipment repair	\$500
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	\$500

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
AquaNeat (glyphosate) – 2 gallons @ \$35/gallon	\$70
WEEDestroy AM-40 (2,4-D Amine) – 2 gallons @ \$12.50/gallon	\$25
Habitat (imazapyr) – 1 gallon @ \$270/gallon	\$270
Garlon 3A (triclopyr) – 1 gallon @ \$80/gallon	\$80
Roundup PRO (glyphosate w/ surfactant) – 1 gallon @ \$35.10/gallon	\$36
MSO or other surfactant – 1 gallon @ \$19/gallon	\$19
TOTAL MATERIAL AND SUPPLY COST	\$500

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
4 X 4 Pickup @ .485/mile x 200 miles/day x 4 days x 2 fiscal year	\$776
TOTAL TRAVEL COST	\$776

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
TOTAL CONTRACT COST	COST /ITEM

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY_07_	8/1/07	9/30/07	F	8	\$493.50	8	\$3,948
FY_08_	10/1/07	9/30/08	F	8	\$493.50	8	\$3,948
FY__							
FY__							
TOTAL							\$7,896

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	M
2. Documented cost figures from similar project work obtained from local agency sources.	P
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan
Refer to Vegetation Assessment- Appendix I.

IV. TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
USFWS	8	\$7,896
TOTAL COST	8	\$7,896

BURNED AREA EMERGENCY STABILIZATION PLAN

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PART F - SPECIFICATION

SPECIFICATION TITLE:	Non-native Invasive Species Control	JURISDICTIONS:	USFWS-CNWR
PART C: LINE ITEM:	#2 Non-native invasive species control – native plantings	FISCAL YEAR:	2007, 2008
ESR REFERENCE #:	8.3.2.3 Revegetation	SPECIFICATION TYPE:	ES

V. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
The treatment will consist of planting native shrub/tree seedlings including Willow (<i>Salix spp.</i>), Wood's Rose (<i>Rosa woodsii</i>), Golden currant (<i>Ribes aureum</i>), Wax Currant (<i>Ribes cereum</i>), Black Cottonwood (<i>Populus balsamifera ssp. tricarpa</i>), Western White Clematis (<i>Clematis ligusticifolia</i>), Red-twig dogwood (<i>Cornus stolonifera</i>), Basin Wildrye (<i>Leymus cinereus</i>), Wyoming big sagebrush (<i>Artemisia tridentata wyominensis</i>), Antelope bitterbrush (<i>Purshia tridentata</i>), Winterfat (<i>Eurotia lanata</i>), and/or Greasewood (<i>Sarcobatus vermiculatus</i>), as available, to rehabilitate impacted riparian and shrub-steppe plant communities that serve as critical habitat for listed and sensitive species.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Seedling shrubs/trees will be planted in historic native plant community sites. Planting sites will be chosen based upon habitat recovery needs, soil productivity, moisture regimes, lack of invasive species, and other native plant species post-fire recovery. Seedling shrubs/trees will be installed in areas near to the limited existing shrub cover that survived the fire. This will expand the effective shrub cover within the fire area. Shrubs/trees will be installed by contracted professional re-forestation planting crews. All sites will be cleared for planting by cultural resources staff prior to installing seedlings.
C. Provide and Number Detailed Design/Construction Specifications
1. Select planting locations and GPS boundaries of planting locations.
2. Provide maps to cultural resources personnel for review and clearance under section 106 NHPA.
3. Install seedling plants using contract re-forestation planters, December 2007/January 2008. Supervise planting and provide maintenance and logistics support.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
Protect and stabilize the ecological integrity and site productivity of native shrub-steppe plant communities and riparian areas, by preventing the invasion of non-native invasive species, and by establishing a trajectory for site recovery, within the Para Fire area in accordance with established refuge purposes and establishment guidelines.
E. Describe Treatment Effectiveness Monitoring
During the summer of 2008, conduct survival survey to determine success of outplantings. Determination of survival rate should be documented with findings incorporated into greenhouse growing operations, management guidelines for native restoration, Agency protocols, and annual budget submissions.

VI. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Wildlife Biologist or Natural Resource Specialist GS -11 (\$33/hr) X 100 Hours	\$3,300
Archeologist GS-12 (\$39/hr) X 16 Hours	\$624
TOTAL PERSONNEL SERVICE COST	\$3,924

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Native shrub seedlings – 4" tubing container stock @ .75 X 400 (Wyoming big sagebrush, Antelope bitterbrush, Winterfat, Greasewood)	\$300
Native riparian plants – whips, and bare root seedlings for 8 acres to prevent weed re-invasion and stabilize burned areas. Willow (Salix) spp. 800 @ 0.85 ea = \$680 Wood's rose 1200 @ 1.00 ea = \$1200 Golden currant 1200 @ .95 ea = \$1140 Wax currant 1200 @ .95 ea = \$1140 Black cottonwood 400 @ .55 ea = \$220 Western white clematis 500 @ .80 = \$400 Red-twig dogwood 1200 @ .70 = \$840 Basin wildrye 1000 @ 1.00 = \$1000	\$6,620
TOTAL MATERIAL AND SUPPLY COST	\$6,920

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
4 X 4 Pickup @ .485/mile x 200 miles/day x 4 days x 1 fiscal year	\$388
TOTAL TRAVEL COST	\$388

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Re-forestation planting crew @ .95 per plant (riparian areas) X 7,900 plants	\$7,505
TOTAL CONTRACT COST	\$7,505

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY_08_	10/1/07	9/30/80	S, F	8	\$2,342.1	8	\$18,737
FY__							
FY__							
FY__							
TOTAL							\$18,737

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	M
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

VII. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan
See Vegetation Assessment, Wildlife Assessment, Appendix I; Photo Documentation, Appendix III

VIII. TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
FWS	8	\$18,737
TOTAL COST	8	\$18,737

BURNED AREA EMERGENCY STABILIZATION PLAN

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PART F - SPECIFICATION

SPECIFICATION TITLE:	Protective Fencing	JURISDICTIONS:	USFWS-CNWR
PART C: LINE ITEM:	#3 – Exclusion Fences	FISCAL YEAR:	2007, 2008
ESR REFERENCE #:	8.3.4 Fences	SPECIFICATION TYPE:	ES

IX. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Repair existing fence and construct additional fence to protect stabilization treatments and protect lands from unauthorized entry by vehicles, and/or the public that would threaten public safety and the ecological integrity of the burn area, and also to prevent trespass of livestock (cattle, horses and sheep) from private lands onto the Refuge. Existing fence damaged by the fire will be repaired/replaced, and temporary fence will be constructed in strategic locations to protect resources. Remove burned-over wood post fence that is now down and poses a safety risk to Refuge visitors and emergency stabilization workers.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Existing fence within Para Fire along internal Refuge boundary, separating public lands from private inholding lands. Private lands are grazed, Refuge lands are not.
C. Provide and Number Detailed Design/Construction Specifications
1. USFWS will designate specific fence locations, quantities, and order materials.
2. USFWS personnel will install fence in accordance with standard USFWS fence specifications. USFWS personnel will install fence in locations that have been cleared for Section 106 compliance.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
The purpose of this treatment is prevent unauthorized vehicles and livestock, from entering the burned area and causing damage to emergency stabilization treatments and recovering vegetation and soils.
E. Describe Treatment Effectiveness Monitoring
See Native Plantings Specification

X. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Maintenance Laborers (2) x \$30/hour x 10 hours per day x 3 days	\$1,800
TOTAL PERSONNEL SERVICE COST	\$1,800

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Fence Materials (5 –strand barbed wire) @\$2 / ft x 1144 feet (Includes posts, wire, stretch posts, gates)	\$2,288
TOTAL MATERIAL AND SUPPLY COST	\$2,288

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
4 X 4 Pickup @ .485/mile x 200 miles/day x 3 days x 1 fiscal year	\$291
TOTAL TRAVEL COST	\$291

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
TOTAL CONTRACT COST	COST /ITEM

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY_07_	8/1/07	9/30/07	F, S	1141	\$3.83	8	\$4,379
FY__							
FY__							
FY__							
TOTAL							\$4,379

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser,

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	M
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

XI. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan

Construction costs derived from current cost estimates for materials. Contractual labor costs based upon actual costs for associated work (24 Command Fire Final Accomplishment Report- 2004).

XII. TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
FWS	1144 feet	\$4,379
TOTAL COST	1144 feet	\$4,379

BURNED AREA EMERGENCY STABILIZATION PLAN

Para Fire

PART F - SPECIFICATION

SPECIFICATION TITLE:	Protective Fencing	JURISDICTIONS:	USFWS-CNWR
PART C: LINE ITEM:	#4 – Effectiveness Monitoring	FISCAL YEAR:	2007, 2008
ESR REFERENCE #:	8.3.6 Monitoring	SPECIFICATION TYPE:	ES

XIII. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Monitoring transects and photo points will be installed to determine the effectiveness of non-native invasive species control (including native plantings), and to monitor native species abundance and establishment. Transects will monitor shrub planting survival and weed cover. Photo points will monitor tree species profile area, as an index of species abundance over time.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Monitoring transects should be set within treated areas. Photo points should be randomly placed within the fire area.
C. Provide and Number Detailed Design/Construction Specifications
1. Establish monitoring transects within the planted areas. If weed species cover exceeds 20%, retreat area with herbicide. If native shrub survival is <25%, then re-plant native shrubs.
2. Establish photo points randomly within the fire area, focusing on native tree plantings. Take "Time 0" and "Time 1" photos (prior to and just after native plantings), and establish a revisit schedule to monitor species abundance over time.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
Adaptive management-based assessment of treatments. If treatments do not meet intended goals for native vegetation stabilization and prevention of invasion by non-native species into the fire area, then treatments can be modified and adapted to meet goals.
E. Describe Treatment Effectiveness Monitoring
See Native Plantings Specification

XIV. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item) Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Wildlife Biologist or Natural Resource Specialist GS-12 (\$39/hr) X 80 hours	\$3,120
TOTAL PERSONNEL SERVICE COST	\$3,120

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Transect/point markers, spatial reference photo markers, misc supplies	\$150
TOTAL MATERIAL AND SUPPLY COST	\$150

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
4 X 4 Pickup @ .485/mile x 200 miles/day x 8 days x 1 fiscal year	\$776
TOTAL TRAVEL COST	\$776

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
TOTAL CONTRACT COST	COST /ITEM

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY_07_	8/1/07	9/30/07	S	8	\$252.88	8	\$2,023
FY_08_	10/1/07	9/30/08	S	8	\$252.88	8	\$2,023
FY_							
FY_							
TOTAL							\$4,046

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser,

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	M
2. Documented cost figures from similar project work obtained from local agency sources.	P, M
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

XV. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan
Construction costs derived from current cost estimates for materials. Contractual labor costs based upon actual costs for associated work (24 Command Fire Final Accomplishment Report- 2004).

XVI. TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
FWS	8 acres	\$4,046
TOTAL COST	8 acres	\$4,046

BURNED AREA EMERGENCY STABILIZATION PLAN

**Para Fire
Columbia National Wildlife Refuge**

APPENDIX I RESOURCE ASSESSMENTS

- **CULTURAL RESOURCE ASSESSMENT (pending)**
- **WILDLIFE RESOURCE ASSESSMENT**
- **VEGETATION RESOURCE ASSESSMENT**
- **OPERATIONS RESOURCE ASSESSMENT**

BURNED AREA EMERGENCY STABILIZATION PLAN
Para Fire
WILDLIFE RESOURCE ASSESSMENT

I. OBJECTIVES

- Assess effects of fire and suppression actions to Threatened, Endangered, Proposed and other significant state and federal agency listed species and their habitat, including birds, mammals, amphibians, reptiles, fish and insects.
- Initiate Emergency Section 7 Consultation as required by the Endangered Species Act.
- Assess effects of fire and suppression action to habitat improvements.
- Assess effects of proposed emergency stabilization actions to listed species and habitat.

II. ISSUES

- 11 agency (state and/or federal) listed wildlife species occur within the fire area, most of which are dependent on shrub-steppe plant communities.
- Potential effects to these species from the fire, suppression actions and potential post fire effects to shrub-steppe obligate species.
- Potential effects to these species from proposed emergency stabilization actions.

III. OBSERVATIONS

A. Background

The purpose of this Burn Area Emergency Stabilization (BAER) Wildlife Assessment is to document the effects of the fire, suppression actions, proposed emergency stabilization work, and potential post fire erosion, to all federally and state listed, agency sensitive and culturally significant mammals, birds, amphibians, reptiles, fish, invertebrates, and their habitats which may occur within or downstream from the fire area. This assessment also includes documentation on Emergency Section 7 Consultation, as required by the Endangered Species Act, with U. S. Fish and Wildlife Service. The species list for the fire area was developed by Kevin Goldie, Wildlife Biologist, U. S. Fish and Wildlife Service (FWS), Mid-Columbia National Wildlife Refuge Complex. Species occurrence discussed in this assessment is based on formal surveys and habitat inventories conducted prior to the Para Fire, and post fire reconnaissance. Documents, inventory data, sighting records, vegetation maps and other species specific information referenced in this report are on file at the Complex office.

The Columbia National Wildlife Refuge (Refuge) is located in the Pacific Flyway. Habitats within the fire area serve as resting and feeding areas for neotropical migratory birds, and include those for many other wildlife and invertebrate species.

B. Reconnaissance Methodology

Information used in this assessment is based on a review of relevant literature, agency management planning documents, agency wildlife sighting and habitat inventory data, communication with FWS, personal communication with agency biologists (listed at end of report), and reconnaissance of the fire area on April 17, 2007. Habitat information and mapping for the various species is based on agency records and post fire reconnaissance. Reconnaissance and analysis included review of other fires in the area to assess effects to species and vegetative recovery.

C. Findings

To better understand the species and habitat information discussed in this wildlife assessment, it is important to review the Para Fire BAER Vegetation and Soils Resource Assessments. These reports contain more detailed descriptions of pre-fire vegetation, post-fire vegetative recovery estimates, and effects to the watersheds.

The purpose of this assessment is to discuss the potential effects of the fire, suppression actions, and proposed emergency stabilization activities to federally and state listed and sensitive species which occur within the fire area. Effects to general wildlife species are not discussed. This assessment is not intended to definitively answer the many questions of effects to specific species that are inevitably raised during an incident such as the Para Fire. The focus of this assessment is to determine the potential for immediate, emergency actions that may be necessary to prevent further effects to these species. Because the species discussed in this assessment have ranges or territories which extend beyond the fire area, it may be important to include information at a larger scale, across land ownership boundaries, for species which may require assessment for long term needs.

BIOLOGICAL EVALUATION

Direct effects as described in this report refer to mortality or disturbances that result in flushing, displacement, harassment or mortality of the animal. Indirect effects refer to modification of habitat and/or effects to prey species.

SHRUB-STEPPE DEPENDENT WILDLIFE SPECIES

The community of plants and animals found in this area represents one of the remaining examples of the shrub-steppe and riparian shrub-steppe ecosystems that once covered the Columbia River Basin. The Refuge contains rare, rich and diverse shrub-steppe and riparian shrub-steppe ecosystem flora and fauna that has been lost elsewhere due to habitat conversion, fragmentation and application of pesticides. The shrub-steppe

ecosystem supports an unusually high diversity of native plant and animal species, including significant breeding populations of nearly all steppe and shrub-steppe dependent wildlife. This area serves a critical role in contributing to the local, regional, national and international ecological integrity of the shrub-steppe ecosystem.

While fire has played an integral role in the history of the shrub-steppe environment, the region's historical fire regime has been greatly altered from socio-political and economic factors. Coupled with the arrival of invasive species and noxious weeds, this has weakened the natural recovery processes of the shrub steppe ecosystem from disturbance events such as fire. Sensitive shrub-steppe and riparian shrub-steppe plant communities were located within the fire perimeter. These vegetation communities provide rare and unique habitat that is critical for meeting FWS regional, national and ecosystem goals and objectives. Managing for biological integrity in this area necessitates that actions be taken to mitigate the ecological effects increasing fire frequency and intensity, and invasion of exotic species.

The Para Fire resulted in negative effects to plant communities through the complete consumption of the above-ground vegetative resources on approximately 95% of the fire area on the Refuge (the remaining 5% being heavily damaged but still standing), with approximately 90% of the native shrubs and trees being killed. Riparian shrub and tree vegetation, as well as sagebrush, greasewood, and rabbitbrush serve food sources and/or provide nesting, resting, thermal and escape cover for a wide variety of species. Other value for wildlife includes the thick canopy which protects understory vegetation that can be a valuable food source for wildlife. Wildlife species occurring in and/or utilizing the fire area that are dependent on the shrub-steppe and have federal and/or state listing status include: Ferruginous hawk, Loggerhead shrike, Sage thrasher, Black tailed jack-rabbit, and Striped whipsnake.

Wildlife Species of Concern:

Para Fire Species List

On April 23, 2007, current species lists for the Para Fire area (Grant County) were obtained from the website of the U. S. Fish and Wildlife, Upper Columbia Fish and Wildlife Office, Spokane, Washington (<http://www.fws.gov/easternwashington/county%20species%20lists.htm>). Federal agencies are also charged with managing for species of importance to the Native American Tribes. Therefore, the following species are included in this assessment. This list was developed by Kevin Goldie. For plant species of concern see Vegetation Assessment.

SPECIES

LISTING STATUS

Black-tailed jackrabbit (*Lepus californicus*)
Burrowing owl (*Athene cunicularia*)
Ferruginous hawk (*Buteo regalis*)
Loggerhead shrike (*Lanius ludovicianus*)

SC
FSC/SC
FSC/ST
FSC/SC

Long-billed curlew (<i>Numenius americanus</i>)	FSC/SM
Mule deer (<i>Odocoileus hemionus</i>)	TI
Night snake (<i>Hypsiglena torquata</i>)	SM
Northern leopard frog (<i>Rana pipiens</i>)	FSC/SE
Sage thrasher (<i>Oreoscoptes montanus</i>)	SC
Striped whipsnake (<i>Masticophis taeniatus taeniatus</i>)	SC
Washington ground squirrel (<i>Spermophilus washingtoni</i>)	FC/SC

The following listed species were identified as occurring, or having habitat within Adams and/or Grant County. Through post fire reconnaissance and consultation with local experts, it was determined that these species were not affected by the fire because they have no habitat within or adjacent to the fire area, and/or inventories prior to the fire determined absence, and/or the fire is outside of the species range or season of use. For plant species of concern see the Vegetation Assessment.

Bald eagle (<i>Haliaeetus leucocephalus</i>)	FLT/ST
Bull trout (<i>Salvelinus confluentus</i>)	FLT/SC
– Columbia River distinct population segment	
California floater (<i>Anodonta californiensis</i>)	FSC/SC
Columbia sharp-tailed grouse (<i>Tympanuchus phasianellus columbianus</i>)	FSC/ST
Great Columbia spire snail (<i>Fluminicola columbiana</i>)	FSC/SC
Greater sage-grouse (<i>Centrocercus urophasianus</i>)	FC/ST
Kincaid's meadow vole (<i>Microtus pennsylvanicus kincaidi</i>)	FSC/SM
Long-eared myotis (<i>Myotis evotis</i>)	FSC/SM
Northern goshawk (<i>Accipiter gentiles</i>)	FSC/SC
Northern sagebrush lizard (<i>Sceloporus graciosus graciosus</i>)	FSC/SC
Pacific lamprey (<i>Lampetra tridentata</i>)	FSC/SM
Pallid Townsend's big-eared bat (<i>Corynorhinus townsendii pallescens</i>)	FSC/SC
Pygmy rabbit (<i>Brachylagus idahoensis</i>)	FLE/SE
– Columbia Basin distinct population segment	
Redband trout (<i>Oncorhynchus mykiss</i>)	FSC/SM
River lamprey (<i>Lampetra ayresii</i>)	FSC
Western brook lamprey (<i>Lampetra richardsoni</i>)	FSC

KEY TO LISTING STATUS:

FLE	FEDERAL LISTED ENDANGERED
FLT	FEDERAL LISTED THREATENED
FC	FEDERAL CANDIDATE
FSC	FEDERAL SPECIES OF CONCERN
SC	STATE CANDIDATE
SE	STATE ENDANGERED
ST	STATE THREATENED

SS STATE SENSITIVE
SM STATE MONITOR
TI TRIBAL IMPORTANCE

BLACK-TAILED JACK RABBIT

Approximately 5 acres of the Para Fire can be considered black-tailed jackrabbit habitat. The black-tailed jackrabbit was once abundant throughout the Columbia Basin. Recent precipitous declines in populations of these hares have raised concerns regarding their distribution and status throughout the region. This species is closely associated with the sagebrush steppe ecosystem. Black-tailed jackrabbits rely on brush structure for breeding sites and hiding cover, and require sagebrush vegetation as forage during winter months. Black-tailed jackrabbits breed from late February to mid-July, with gestation lasting 41 to 47 days (Flinders and Chapman 2003). They can have two to six litters per year, with local populations likely tending towards the low end of this scale (Flinders and Chapman 2003). Hares, unlike rabbits, do not use burrows. They place their young in shallow depressions in the soil called forms. Jackrabbits are generally solitary and primarily nocturnal. They are vulnerable to predators including, coyotes, bobcats, foxes, hawks, owls, and snakes. Loss of habitat due to agricultural and human development has impacted jackrabbit populations. The fragmentation and isolation of populations residing within remnant habitat areas has probably increased their vulnerability to stochastic events (e.g. severe weather, disease, fire, etc.) and has limited the re-colonization of areas that could potentially support jackrabbit populations.

FIRE IMPACTS: Black-tailed jackrabbits are known to be relatively fast moving animals. Because these animals are highly mobile, it is anticipated that they would have been able to move out of the way of the fire. However, any recently birthed young would have likely been consumed in the fire as they would not have been able to flee. The loss of sage-steppe shrub structure and cover reduces the amount of hiding cover for this species, and will increase the vulnerability of jackrabbits to predation. Impacts to the local jackrabbit population will also affect those animals that prey on jackrabbits, as jackrabbit numbers decrease there will be less forage for other animals that prey upon jackrabbits.

BURROWING OWL

Burrowing Owls are a federal species of concern, a Migratory bird of Conservation Concern (USFWS 2002), and a state candidate species, and a state priority species. Although there are no known active burrows within the fire area, there is one historic location of Burrowing owl adjacent to the fire area (Appendix V- Maps). Prior to the fire portions of this area were considered potential habitat for burrowing owls; however, the fire area had not yet been systematically surveyed for burrowing owls.

Burrowing owls are small ground-dwelling species associated with dry, open, shortgrass, or desert and are often linked with burrowing mammals. Foraging areas are typically short grass dominated habitats. Food items include predominately

invertebrates and small mammals, and occasionally small birds and reptiles. Within the Columbia Basin, Burrowing owls are primarily migratory and are present from February through early August, although a few individuals over-winter. The Burrowing owl is thought to be declining throughout central Washington and much of its range in North America. Its current population levels on the Refuge are not known. Once thought relatively common in the Columbia Basin, they are now rarely observed. The regional decline of ground squirrels, which provide nesting sites for these owls, is possibly linked with the apparent decline in owl populations. The potential decline in population is not unique to the Refuge and may be characteristic of the species population trend throughout eastern Washington.

FIRE IMPACTS: Impacts to Burrowing Owls from the Para Fire are indirect and include: impacts to invertebrate and small mammal prey populations, a reduction of habitat diversity that supports prey for burrowing owls, and reduction of habitat for foraging burrowing owls. The elimination of shrubs effectively reduces almost all natural perch locations for burrowing owls. Shrubs are also important to burrowing owls as thermal cover, adults and juvenile owls seek thermal cover in the shade of shrubs during mid-day periods. Further, elimination of shrub cover may expose small mammals to higher predation rates and consequently may reduce the local abundance of small mammals. Burrowing owls are also prey for other raptor species. Reduced plant biomass, and loss of cover could result in a higher predation rate on individual burrowing owls within the burn area. Clearly, stabilization of the shrub habitat that supports burrowing owls will make this area more viable as burrowing owl habitat in the future. Without stabilization of the shrub habitat, and given the aggressive nature of the invasive non-native plant species and the cattail and bulrush species present in the fire area, it is unlikely that burrowing owls would use this area in the future.

FERRUGINOUS HAWK

Ferruginous hawks are a federal species of concern, a federal Migratory bird of Conservation Concern (USFWS 2002) and a state Threatened species. Ferruginous hawks are migratory raptors that occur on the Refuge during the breeding season from early March through August. The incubation period is 28-33 days with fledging at 44-48 days from the date the egg is laid. There are five known historical nest locations within 6 miles of the fire area (Appendix V). The fire area is well within the foraging area for these nesting territories. The records of the nests in these areas are two from 1995, one from 1999, and two from 2003. However, nesting raptors are not monitored every year, and historic nest locations may be re-used in later years. Ferruginous hawks do demonstrate nest site fidelity, returning to the same nesting territories in subsequent years. The fact that these territories were not documented to have been used during this season does not mean that they were not used, nor does it mean that they would not be viable in future years. Many territories in Eastern Washington are unoccupied due to the current decline in the population of Ferruginous hawks in Washington. Available nesting territories are not currently thought to be limiting the population and, if the population rebounds, currently unoccupied areas may become occupied (Watson 2003). Ferruginous hawks are sensitive to human presence, and will abandon their

nests if subject to human encroachment. Activities (especially noisy ones) near nesting sites should be limited during the breeding and fledging season.

Ferruginous hawks prey on a variety of mammals, birds, reptiles and insects, depending upon local area and prey abundance. These hawks may forage up to 15 km (approximately 9 miles) from their nest site; however, nest success may be greater in areas where abundant forage is in close proximity to the nest location. Areas where prey densities are high generally have greater successful nesting attempts. The average home range size of Ferruginous hawk in Washington state may be as large as 7,660 acres (31 sq. km = 11 sq. miles), based on hawks traveling considerable distances to forage (WDFW 1996).

FIRE IMPACTS: The entire 8 acres of the Para Fire can be considered Ferruginous hawk habitat. Impacts to Ferruginous hawks from the Para Fire are indirect and include a reduction of habitat diversity that supports prey for Ferruginous hawks, reduction of habitat for foraging and nesting Ferruginous hawks, and reduced potential for this historic nesting area to be re-occupied in future years. The Washington Department of Fish and Wildlife considers the Ferruginous hawk a priority species for management and recognizes that they benefit from land-use practices that ensure an adequate prey base. WDFW recommends that Landowners/managers should protect shrub-steppe and grassland habitats that harbor significant populations of small mammals and other prey (Richardson et. al. 2004). Further, WDFW recommends replanting of native plant species after chaining or burning to promote habitat stability and to benefit Ferruginous hawk prey populations (Richardson et al. 2004, Olendorff 1993). Therefore, stabilization of the habitat lost in the Para Fire in and around the historic nest location is important, to support an abundance of prey species, and to develop critical foraging and nesting habitat for the Ferruginous hawk.

LOGGERHEAD SHRIKE

The Loggerhead shrike is a neo-tropical migrant species that breeds on the Refuge. Loggerhead shrikes are a federal species of concern, listed as a Migratory bird of Conservation Concern (USFWS 2002), and are a state Candidate for listing as a Threatened species. It is possible that there were breeding territories in the fire area based on habitat prior to the fire and the fact that this area has not been systematically surveyed for shrikes.

Loggerhead shrikes are common on the Refuge from early March until the end of August. After August numbers are reduced but individuals have been sited through early November. Loggerhead shrikes require mature sagebrush, or other shrubs, for breeding and foraging habitat. Shrikes are most abundant in habitats of relatively high horizontal and vertical structural diversity (Poole 1992). This species builds its nest within shrubs, and requires some sort of shrub or other habitat feature when foraging for impaling its prey. The species is well known for its unusual and complex behavior of impaling prey on sharp objects in conspicuous places or wedging prey in narrow V-shaped forks (Yosef 1996). The primary prey items of this species are insects (e.g.,

beetles, grasshoppers), although small mammals, small birds, and lizards are also taken as prey (Yosef 1996). Loggerhead shrikes are highly territorial, and they exhibit a high level of nest site/territory fidelity. Poole (1992) found that shrikes defended territories averaging 34.4 acres (4.9 ac) on the Hanford Site in Washington (just to the south of the Refuge). Also on the Hanford Site, of 113 territories studied, 96% were reoccupied the following season (Poole 1992). Shrikes remain in breeding territories as fledglings for 3-4 weeks after leaving the nest. This post fledging period is the time of highest mortality for shrikes, when young birds are weak fliers and are vulnerable to predation (Poole 1992).

The Loggerhead shrike is one of the few North American passerines whose populations have declined continent wide in recent decades (Yosef 1996), and in Washington Breeding Bird Survey data for the Columbia River Basin shows a significant decline in the shrike population over the last 26 years (Vander Haegen 2004). Burning and wildfires may create the greatest risk to local shrike populations because the damage is immediate and regeneration to pre-burn condition may take up to 30 years (Harniss and Murray 1973).

FIRE IMPACTS: Three to five acres of the habitat that was burned in the Para Fire could be considered breeding habitat for Loggerhead shrikes. Impacts from the Para Fire to the shrikes are likely indirect and include greater mortality to fledgling young in the fire area due to loss of hiding cover, loss of prey base, loss of habitat for nesting and foraging, and loss of structural diversity of habitat required for shrike utilization of the area. Because shrikes exhibit fidelity to nesting territories, individuals that attempt to return to former territories in subsequent breeding seasons will find them void of nesting cover and structure. Additionally, displacement of individual breeding pairs into other areas may increase inter- and intra-specific competition for nesting territories. If suitable habitat areas were already occupied by breeding pairs, displaced pairs may not be able to locate territories, or will be forced to utilize marginal habitat types. Breeding success would likely decline for pairs that have been displaced by fire impacts to their breeding habitat.

The Washington Department of Fish and Wildlife considers the shrike a priority species for management and provides the following management recommendations for loggerhead shrike habitat: retain shrub-steppe communities, especially big sagebrush and mixed shrub communities, avoid wildfires and activities that may increase invasion by exotic vegetation, avoid management activities that increase cheatgrass invasion or increase risk of wildfire (Vander Haegen 2004, Leu and Manuwal 1996). Stabilization of the habitat within the fire area is critical for Refuge management of this declining species.

LONG-BILLED CURLEW

The long-billed curlew is a large shorebird species that breeds in the sage-steppe and grassland environments of the Basin Regions of North America. It is a federal species of concern and a state monitor species in Washington. It is also a priority species for

the Complex. The long-billed curlew is an obligate of grasslands and open shrub areas, but will also use open areas in riparian/wetland habitats and agricultural fields while feeding. It feeds primarily on insects and arachnids, and occasionally on baby birds and rodents. It has been documented to successfully reproduce on the Refuge. A long-billed curlew was observed during the post-fire reconnaissance calling and doing territorial flying over the open shrubs and grasses immediately adjacent to the fire area.

FIRE IMPACTS: Long-billed curlew are highly mobile and any adults were likely able to easily escape the fire; however, any nests that may have been located within the fire area would have been lost. No remains of nests were found during the post-fire reconnaissance, though it is unclear how much would have been left. The greatest impact to Long-billed curlew will likely be in the loss of breeding habitat as non-native invasive weeds and cattails and bulrush become dominate in the fire area without the competition from native shrubs and grasses.

MULE DEER

Mule deer are a common resident ungulate of the Refuge. The deer population in the Refuge is believed to be relatively stable. Mule deer are primarily browsers and rely on riparian vegetation and bitterbrush for browse.

FIRE IMPACTS: Mule deer are highly mobile animals, and it is anticipated that they were able to move out of the affected area during the fire. Recently born fawns may not have been able to move out of the way of the fire; however no mortality of deer fawns was documented during post fire reconnaissance. The greatest impact to mule deer within the burn area is loss of available forage. Regrowth of grasses in upland areas is not anticipated until fall rains begin, possibly in November. Regrowth of shrub species is expected to be minimal due to high fire residence times and the cumulative impacts to species richness/seed banks by past fires. Mule deer may forage outside of the burn area. Additionally, deer may also experience some nutritional stress due to loss of forage from the fire. Lactating does may be at the greatest risk of this type of stress because of the energy demands that lactation produces.

NIGHT SNAKE

Night snakes are relatively small, spotted, nocturnal snakes that primarily occur in arid areas within Washington (Hallock and McAllister 2005a). They have been documented within two miles of the Para Fire area. During the day Night snakes can primarily be found under objects, in particular under rocks, or in basaltic or talus areas. They feed on small lizards, smaller snakes, lizard eggs, frogs, and other small prey. Night snake distribution may be limited by the availability of their lizard prey species (as opposed to the distribution of their other prey species). Very little is known about the mating behaviour or the reproductive habits/requirements of this snake species. Survival rates, growth rates, and longevity are also unknown. Loss of habitat, and the associated fragmentation and isolation of populations, are believed to be the greatest threats to the Night snake.

FIRE IMPACTS: Approximately 3-5 acres of the Para Fire can be considered Night snake habitat. If present during the fire, Night snakes could have experienced mortality if unable to move quickly or find a safe cover area. Those that survived would experience temporary displacement. Habitat within the fire area for any of their prey species was reduced. Therefore, prey species may be less available for the Night snake until the habitat recovers and is repopulated by the various prey species. Invasion of cheat grass and other invasive non-native plant species, as well as expansion of cattail and bulrush across the fire area, will reduce the likelihood that this area would recover into habitat that could support Night snakes.

NORTHERN LEOPARD FROG

The Northern leopard Frog is a medium to large aquatic frog (Hallock and McAllister 2005b). Very little is known about their reproductive habitats or needs. Breeding takes place from late March to late April, with egg masses being laid, attached to vegetation in water >15cm deep, during this time. They are believed to feed on aquatic and terrestrial invertebrates, and possibly other smaller frogs. They are a federal species of concern, but are considered endangered in Washington by state agencies. They are currently only known from Moses Lake-Potholes Reservoir and from the Gloyd Seeps area, both of which are adjacent to or upstream of the Para Fire area. Northern leopard frogs are not known to have occurred within the Para Fire area, though the area has not been thoroughly surveyed for Northern leopard frogs.

FIRE EFFECTS: Northern leopard frogs are relatively slow moving on land. If any Northern spotted frogs occurred in the Para Fire area during the fire they likely would not have been able to escape and would have been consumed by the fire, as there was little standing water for the frogs to escape into during the fire, within the fire boundaries. Any egg masses would have been over-heated and dried by the fire and would no longer be viable. It is not believed any frogs or egg masses were lost in the fire.

Any frogs in the Para Fire area would be temporarily displaced, as would their prey species. In the short term Northern leopard frogs may benefit from the fire, as it opened the cattails and bulrush, leaving more open water areas during periods of higher water (i.e., during the summer agriculture irrigation cycle) with ample cover as the surviving cattails and bulrush grow this year. However, with the loss of competing native shrubs and the opening of the habitat to encroachment by non-native invasive plants, and as the cattails and bulrush expand their footprint and increase in density, the habitat will ultimately be degraded for Northern leopard frogs.

SAGE THRASHER

Sage thrashers are a neotropical migratory bird species present on the Refuge in low numbers from early April through September. The Washington State Candidate Sage Thrasher is found on the Refuge primarily in patches of big sagebrush and three-tip

sagebrush. The sage thrasher is a species that is highly dependent on healthy shrub-steppe communities comprised of tall, dense sagebrush (*Artemisia* spp.). Sage thrashers are closely associated with sagebrush and are considered obligates of sagebrush communities (Vander Hagen 2003).

In order to maintain sage thrasher populations, shrub-steppe communities should be left in reasonably undisturbed condition and fragmentation should be minimized. Management activities that increase cheatgrass invasion or increase risk of wildfire also must be avoided (Vander Hagen 2003). Burning may lead to serious negative impacts to local sage thrasher populations because the damage is immediate and regeneration to pre-burn condition may take up to 30 years (Harniss and Murray 1973).

FIRE IMPACTS: Sage thrashers are mobile animals and would have been able to move out of the fire area. Dense sage areas on the Refuge provide sage thrasher habitat. The reduction of sagebrush within the fire area further contributed to the loss of habitat for sage thrashers, which may have long term impacts for sage thrashers. Long term effects would include displacement of sage thrashers from the burn area. It is anticipated that this species will not return until the sagebrush recovers to maturity and provides the necessary habitat structure to support sage thrashers. It is unknown if potential re-colonizing populations exist nearby.

STRIPED WHIPSNAKE

Striped whipsnakes occur in the Columbia Basin of Central Washington up to 1,985 feet elevation (Hallock and McAllister 2005c). The striped whipsnake is a long slender snake that is dark above with alternating light and dark stripes down the length of the body. Adults range in size from 90 to 180 cm total length. This species is rare throughout most of the Washington portion of its range. Striped whipsnakes have been documented in Washington only approximately 30 times. In the decade from 1995 to 2005, only 3 observations were reported. In communications with area reptile experts, recent radio telemetry work on Striped whipsnakes have found them foraging and hibernating in habitats similar to those found in and surrounding the Para Fire. This species occurs in low elevation arid regions with scattered vegetation, and open rocky areas. Mating occurs in the spring with eggs being deposited in June, and hatching in the late summer or early fall. Little is known about the habitat requirements in Washington. The remaining undeveloped areas of Adams and Grant County where they occur have relatively undisturbed shrub-steppe habitat with a low cover of cheatgrass.

FIRE IMPACTS: Approximately 3-5 acres of the Para Fire can be considered Striped whipsnake habitat. If present during the fire, Striped whipsnakes could have experienced mortality if unable to move quickly or find a burrow. Those that survived would experience temporary displacement. Prey species are primarily lizards, but may include rodents, bats, frogs, birds, and other snakes. Habitat within the fire area for any of these species was reduced. Therefore, prey species may be less available for the striped whipsnake until the habitat recovers and is repopulated by the various prey

species. Invasion of cheat grass and other invasive non-native plant species, as well as expansion of cattail and bulrush across the fire area, will reduce the likelihood that this area would recover into habitat that could support Striped whipsnakes.

WASHINGTON GROUND SQUIRREL

This area is also potential habitat for the Washington Ground Squirrel, a federal and state candidate for listing as a Threatened species. The Washington ground squirrel is a brownish-gray squirrel with conspicuous white spots on the dorsum. This species occurs in Washington only in select areas east of the Columbia River. It prefers sandy soils in dry, open, sagebrush and grassland habitats. This species hibernates 7-8 months per year from June/July through January/February. These squirrels eat succulent vegetation and bulbs in early spring and seeds in the early summer. Burrows are usually about ≤ 3 inches in diameter and entrances are often hidden under bushes or rocks (Yensen, E. And P. W. Sherman. 2003.). There were no known burrows within the fire area, however several squirrel-size holes were discovered during the post-fire reconnaissance within the fire boundaries.

FIRE IMAPCTS: Any Washington ground squirrels within the fire area would have been exposed to high heat and smoke during the fire, and likely would have sought shelter in their burrows. However, depending upon heat and fire intensity, animals may have suffered mortality within their burrows. The removal of shrub cover will impact the habitat for Washington ground squirrels which require shrubs for hiding cover as protection from predation, as will the loss of grasses and forbs, which they require for collecting of estivation and hibernation food reserves. Further, the potential conversion of native bunch grass areas to annual grasses (cheat grass) and the conversion of former shrub areas to non-native invasive weeds and to cattail/bulrush areas will negatively impact the habitat suitability for Washington ground squirrels. Habitat degradation of rangelands and shrub-steppe areas is recognized as a major cause of decline in this species (Yensen, E. and Pp. W. Sherman. 2003). Stabilization and rehabilitation of the area is important to maintain the potential for the area to support Washington ground squirrels.

IV. RECOMMENDATIONS

A. Fire Suppression:

Determinations of effect: The fire, suppression actions and proposed emergency stabilization had no affect to the federally listed species, due to the fact that no federally listed species occur within the fire area. Therefore there is no need for emergency Section 7 Consultation for the Para Fire emergency stabilization.

B. Emergency Stabilization:

Recommendations with Specifications:

- #1 – Non-native Invasive species control – Integrated Pest Management. This specification is critical, as mentioned above in wildlife species assessments, to stabilize the ecological integrity and condition of the burned area and to create a trajectory of recovery that will eventually result in viable habitat conditions for all 11 of the listed species addressed above.
- #2 – Non-native Invasive Species Control – Native Plantings. This specification is critical, as mentioned above in wildlife species assessments, to stabilize the ecological integrity and condition of the burned area and to create a trajectory of recovery that will eventually result in viable habitat conditions for all 11 of the listed species addressed above

C. Management recommendations (Non-Specification Related):

- Permanent photo points and monitoring transects should be established in key wildlife habitat locations to monitor habitat recovery. This should be coordinated with the vegetation monitoring as recommended in the Para Fire BAER Vegetation Report.
- Small mammal monitoring should be conducted using live traps and should be expanded as needed to determine prey species abundance for the various fire affected species. Reptile and amphibian surveys and monitoring should be conducted and should be expanded as needed to determine potential effects of the fire and associated habitat loss on reptiles and amphibians, and to determine presence/absence and abundance of species in adjacent areas to determine if they can adequately serve as source populations.

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BURNED AREA EMERGENCY STABILIZATION PLAN

Para Fire

VEGETATION RESOURCE ASSESSMENT

OBJECTIVES

- Evaluate and assess fire and suppression impacts to vegetation resources and identify values at risk associated with vegetation losses.
- Determine emergency stabilization and monitoring needs supported by specifications to aid in vegetation recovery and soil stabilization.
- Evaluate the potential for invasive species encroachment into native plant communities within the fire area.
- Provide management recommendations to assist in vegetation recovery, watershed stabilization, site productivity and species habitat protection.

II. ISSUES

- Protection and enhancement of other resource values including site productivity, wildlife habitat, vegetation resources, cultural resources and watershed stability.
- Management strategies which provide for the stabilization, natural regeneration and recovery of impacted areas.
- Immediate stabilization of denuded (i.e. vegetation has been removed) soils that may impact ecological function
- Monitoring of the planting/seeding effectiveness of emergency stabilization efforts.
- Monitoring of impacted lands for the early detection and control of invasive and noxious weed species.

III. OBSERVATIONS

This report identifies and addresses known and potential impacts to vegetation resources within the Para Fire area, Columbia National Wildlife Refuge (Refuge). The burned area consists of approximately 10.4 acres of contiguous area, 8.2 of which were within the boundaries of the Refuge. The vegetation resources can be described as Riparian plant communities, and associated upland Columbia Basin shrub-steppe plant communities. Findings and recommendations contained within this assessment are based upon field reconnaissance of the fire area, interviews with local resource specialists, local land managers, and review of relevant documents.

This report will detail the known damage to the vegetation and soil resources; will discuss re-vegetation processes and future monitoring criteria, and will outline management considerations for recovery of vegetation resources.

A. Reconnaissance Methodology and Results

Ground reconnaissance was conducted on April 17, 2007. Photographs were taken and are in the photo documentation section of this plan (Appendix III). Vegetation resources provide valuable wildlife forage and habitat, watershed protection, effective competition against invasive non-native plant species, and comprise a visually pleasing landscape. Complete consumption of the above-ground vegetative resources was observed on approximately 95% of the fire area on the Refuge (the remaining 5% being heavily damaged but still standing), with approximately 90% of the native shrubs and trees being killed. The primary vegetative concerns are the recovery of the native riparian shrub/tree plant community (Wood's rose, currants, willows, and cottonwood) and control of non-native species and noxious weed invasion. Some blowing dust and ash was observed in areas, especially on the Bluebird campground access road, along vehicle trails around, and within the cattail/bulrush areas in the fire area.

The Refuge contains many endemic plant communities and species that have been lost or significantly reduced throughout all or a significant portion of their range. Sensitive plant communities have been defined as those that are foundation plant communities, representing historic conditions within the Columbia Basin eco-region. The Para Fire impacted 8.2 acres of plant communities identified as sensitive and may be irrevocably damaged. Stabilization of these areas is critical to protect and prevent further degradation to these areas.

Literature and GIS data available at the Refuge headquarters relating to vegetation resources in the area was consulted for baseline data relating to pre-fire conditions on the burned area.

1. Soils:

Soils within the fire area consist of slackwater fines from Pleistocene floods, sandy clay, sandy loam. The entire region is underlain by Miocene-aged basalt that is thousands of feet thick.

The ParaFire has removed approximately 100% of all vegetative cover over 8.2 acres. The soils underlying the ParaFire area are composed primarily of silt loam (6.5 acres) and rocky areas with very fine sandy loams (0.9 acres).

2. Vegetation:

The ParaFire burned approximately 8.2 acres of federal lands near the Bluebird campground on the Refuge.

Primary plant communities impacted by the fire included the following plant associations:

Cattail/Bullrush emergent marsh: Wetland adapted and aquatic plants are inundated with water for part or all of the growing season. Cattail (*Typha* sp.) and hardstem bulrush (*Schoenoplectus acutus*) are the dominant marsh plants, and occupy the area of soil that is inundated.

Willow Riparian: Willow riparian is dominated by Pacific and coyote willow (*Salix* sp.), golden currant (*Ribes aureum*), rose (*Rosa woodsii*) and clematis (*Clematis ligusticifolia*) or other species at lower levels.

Wyoming Big Sagebrush/Antelope Bitterbrush/Sandberg's Bluegrass/Cheatgrass: Wyoming big sagebrush is the dominant shrub, although bitterbrush (*Purshia tridentata*) occurs at varying levels. Sandberg's Bluegrass (*Poa secunda*) mixed with cheatgrass (*Bromus tectorum*) dominates the understory.

Black greasewood/Sandberg's bluegrass/Saltgrass: Black greasewood (*Sarcobatus vermiculatus*) is the dominant shrub and can be indicative of mildly to strongly sodic soil as well as non-saline to strongly saline soil types. Rabbitbrush (*Crysothamnus* sp.) occurs in this community as an associated shrub. The understory is a combination of Sandberg's Bluegrass (*Poa secunda*) mixed with Saltgrass (*Distichlis*).

Species diversity within each of the major community types has been altered in some areas due to the activities of neo-European people that entered the region beginning 200 years ago. In more recent history, alien plants were introduced and established a foot-hold in the shrub-steppe communities with the advent of livestock grazing in the mid-1800's and through agricultural cultivation and urbanization later in the century. Vegetation within this area has also been altered through the establishment of cheatgrass within sage communities and the shortening of the natural fire return

interval. Historically, fire return intervals were between 50-100 years in the shrub-steppe region. Fires burned in a mosaic fashion across the landscape leaving many healthy remnant stands of bunchgrass and sage. The mosaic fire patterns allowed for the survival of healthy sage communities and habitat for wildlife species. The shortened fire return interval has created impacts from repeated burning.

3. Rare Plants

A current USFWS species list for the county and GIS data layers for the Refuge were consulted. Listed plant species that have occurrences within Grant and Adams County include;

Threatened:

Ute Ladies'-tresses (*Spiranthes diluvialis*)

Candidate:

Northern wormwood (*Artemisia campestris* ssp. *borealis* var. *wormskioldii*)

Species of Concern:

Gray Cryptantha (*Cryptantha leucophaea*)

Hoover's desert-parsley (*Lomatium tuberosum*)

Wanapum crazyweed (*Oxytropis campestris* var. *wanapum*)

Washington polemonium (*Polemonium pectinatum*)

The above listed species were identified as occurring, or having habitat within, Adams or Grant County. However, through post fire reconnaissance and consultation with local experts, it was determined that these species were not affected by the fire because they have no habitat within or adjacent to the fire area, and/or inventories prior to the fire determined absence, or the fire is outside of the species range.

None of the above listed species have populations of/or individual plants that have been documented to occur within the fire area. The habitat requirements of Ute Ladies'-tresses and Northern wormwood are restricted to natural riparian areas along the Columbia River or within natural wetland springs, while this habitat type occurs within the fire area, the affected riparian is associated with irrigation or other water sources and not a riverine or natural spring area.

Hoover's desert parsley occurs only on talus habitats, none of which exist in the fire area.

Wanapum crazyweed is known only from one location in Washington well outside of the fire area.

4. Vegetation/Structural Impacts

Vegetation resources were directly impacted by the Para Fire and by suppression tactics utilized to control the fire. Documented impacts to vegetation resulted from:

- a) Impacts to native microbiotic crust, shrub and grass species during suppression and mop-up activities.
- b) Vegetation losses due to fire intensity.
- c) Loss of the organic litter layer on approximately 95% percent of the fire area.

Generally speaking, most sagebrush and bunchgrass communities experienced 95% vegetation loss of above ground cover. On approximately 95% of the fire area, complete consumption of vegetation resources was observed; most shrub, grass, and forb species and organic material on the soil surface was consumed indicating extreme fire intensity.

A complete burn pattern within the shrub-steppe vegetation was observed and mapped on approximately 100% of the fire area. In these areas some loss of shrubs is still predicted to occur due to mortality from heat produced by the fire.

Most of the forb species were consumed. Although the fire burned at varying intensities across the landscape, in most cases the residency time of the fire was short enough so as not to damage the soil, existing root systems, or reduce native seed banks in the known habitats of these plants.

Negative impacts resulting from vegetation losses include a reduction in wildlife habitat, forage for wildlife species, visual quality degradation, increased non-native species invasion, bare soils, and reduced species diversity. The loss of wildlife habitat and potential impacts to Threatened and Endangered Species are discussed further within the Wildlife Assessment.

Ground disturbing impacts to Refuge property resulted from the engines driving off road during suppression efforts. A complete inventory was conducted of ground disturbance on the fire area and emergency stabilization needs assessed (see Operations assessment).

B. Vegetation Recovery

Revegetation of the fire area through natural processes will take between 7-30 years to visually represent pre-fire conditions. However, due to the presence of non-native plants and noxious weeds, the site is at risk of becoming dominated by non-native annuals, such as cheatgrass, aggressive annual/biennial species such as kochia and Russian thistle, and aggressive perennial species such as Canada thistle, Russian

Olive, and native cattail and bulrush species. Without active restoration it is unlikely that the site will recover to its pre-fire characteristics. Some impacted plant communities will take decades to re-establish back to pre-fire levels. Most research indicates that fire eliminates bitterbrush and sagebrush for at least several years. Because Wyoming big sagebrush reproduces by seed and not by sprouting, recovery can be very prolonged on many sites.

1. Noxious Weed Establishment

Invasive alien plant species pose one of the most serious threats to the native biodiversity, wildlife habitat, and scenic values of the Refuge. At Columbia NWR, and elsewhere in western North America, invasive and noxious alien plant species compete against and reduce habitat available for rare plant taxa and native plant species in general. Weeds alter ecosystem structure and function, disrupt food chains and other ecosystem characteristics vital to wildlife (including rare and endangered species), and can dramatically alter key ecosystem processes such as hydrology, productivity, nutrient cycling, and fire regime. Conditions created by wildfire favor the spread of many noxious weed species (Evans, J.R., J.J. Nugent, and J.K. Meisel, 2003).

The establishment of invasive species and noxious weeds which will compete with native vegetation recovery is likely. During field assessment inventories, the vegetation specialist recorded sightings of Kochia (*Bassia scoparia*), Russian olive (*Elaeagnus angustifolia*), Canada thistle (*Cirsium arvense*), Cheatgrass (*Bromus tectorum*), and Russian thistle (*Salsola kali*) infestations. Several of these species are located within the fire area, and the others are very near to the fire area or in roads used to access the area by fire suppression personnel.

All of the above non-native plants and noxious weeds spread vigorously, and are a threat to the burned area. Each of these species is currently located along existing road systems and/or in areas within or near the fire. It is imperative to treat known populations prior to seed-set in order to reduce the expansion potentials of these populations into the fire area. Immediate treatment of these populations is recommended.

The fire area presents a disturbance, and has created new open sites for weed invasion. Coupled with the added nutrients from the ash, a fertile bed for the rapid colonization and spread of non-native species has been created. Upon the discovery of new noxious weed populations, accurate population information should be collected through the use of Global Positioning Systems (GPS) to determine infestation size, original source and potential control methods. Control efforts will be implemented in accordance with the Invasive species management plan guidelines and protocols.

The area of the fire may have further populations of noxious weeds that are currently undocumented. Immediate surveys of the area are important to document any previously unknown infestations.

The U.S. Fish and Wildlife Service uses an Integrated Pest Management (IPM) approach to treat targeted invasive plant species on the Refuge. Manual, mechanical, biological, cultural (e.g., prescribed fire, competitive plantings), and chemical treatment methods will be used within the fire area to achieve prioritized weed control objectives. Invasive species managers will draw upon the full range of appropriate control technologies to develop integrated treatment plans for target species at selected priority sites. Treatment methodologies will be based upon the best information available from weed management literature and professional experience, tailored to the characteristics of the particular species and site.

2. Revegetation

Concern has been expressed over the loss of vegetation cover within the Para Fire area. Stabilization and re-vegetation of those areas as needed to ensure ecological function. Revegetation in the area should be conducted in order to protect soils in the area, to reduce the change due to further erosion and degradation. Wind erosion is highly likely in this area. Additionally, because the site is at high risk from non-native species and noxious weeds, re-vegetation must be completed to protect the plant community and ecology of the site. As stated above, it is unlikely that the fire area will recover without some intervention and active restoration effort.

IV. RECOMMENDATIONS

A. Fire Suppression:

Suppression account - Replant and reseed all disturbed areas resulting from suppression actions with native species to protect the ecological integrity of the area. Seeding and planting will be postponed until fall of 2007 or until such time as adequate moisture provides a firm seedbed for stabilization actions.

B. Emergency Stabilization : (specification related)

The following recommendations are offered to assist in the timely recovery of the ParaFire:

-1 Non-native Invasive Species Control – Integrated Pest Management

Identify and treat non-native invasive species within the Parafire area, and control infestations in areas adjacent to the ParaFire area utilizing integrated pest management techniques.

#-2 Non-native Invasive Species Control – Native Plantings

Install native plants in burned area to stabilize ecological integrity of the native shrub steppe and riparian communities, to prevent invasion by noxious weeds and non-native species, and to stabilize soils and reduce erosion that threatens public safety and site degradation.

C. Management Recommendations (non-specification related)

- Protect area from further disturbance during recovery.

VI. References

Evans, J. R., J.J. Nugent, and J. K. Meisel. 2003. Invasive Plant Species Inventory and Management Plan for the Hanford Reach National Monument. Report to U.S. Fish and Wildlife Service, The Nature Conservancy of Washington, Seattle, Washington.

BURNED AREA EMERGENCY STABILIZATION PLAN

Para Fire

OPERATIONS ASSESSMENT

I. OBJECTIVES

- Identify, inventory, and map fire suppression impacts on jurisdictions affected by the fire.
- Specify measures to mitigate fire suppression impacts.
- Coordinate with local agencies so that specification recommendations are consistent with agency objectives.
- Protect natural and cultural resource values.

II. ISSUES

- Potential impacts to critical natural and cultural resources from suppression actions.
- Soil disturbance on highly erodable soils from fire suppression activities.

III. OBSERVATIONS

A. Background

Please refer to fire history summary.

B. Reconnaissance Methodology and Results

On April 17, 2007, Mid-Columbia NWR Complex staff began evaluating resource impacts caused by the suppression effort on lands and physical improvements with the Para Fire area. Team members did reconnaissance from the ground and obtained information from suppression forces.

C. Findings

The Para Fire burned approximately 10.4 acres on the Columbia National Wildlife Refuge (Refuge). Suppression activities resulted in vehicle tracks in wet areas and along fire perimeter. Approximately 1144 feet of boundary fence were badly damaged by the fire. Suppression line treatments are necessary to protect habitats from noxious weed infestation, ORV intrusion on the landscape, and to minimize fragmentation of ecological areas. Monitoring of suppression lines is

necessary to determine the need for future noxious weed mitigation needs. All treatments to stabilize these areas will be done according to methods described in the Hanford Site Biological Resource Management Plan (HSBRMP, 1996). A complete cultural resource assessment will be completed on all suppression lines within the fire (refer to Cultural Resources Assessment).

There are two types of suppression impacts to be considered:

- The vehicle tracks into the fire area that were used for suppression actions damaged the habitat and soil structure and have created the potential for illegal ORV traffic. The vehicle tracks will be smoothed and stabilized with native vegetation.
- Lands to the south of the damaged fence are heavily grazed. The fence will be replaced to avoid damage from escaped cattle and other grazing animals.

IV. RECOMMENDATIONS

A. Management (non-specification related)

- Continue to review treatment specifications with operators and other personnel associated with implementation of the BAER Plan to insure suppression specifications are clearly understood for protection of sensitive resources and land productivity. Ensure proper accounting procedures are followed in the repair of suppression related impacts through suppression accounts.
- Guarantee safety of personnel assigned to rehab operational assignments in the fire area.
- Monitor suppression related damage following fall and winter moisture events to see if additional rehab measures are necessary.

V. CONSULTATIONS

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VI. REFERENCES

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BURNED AREA EMERGENCY STABILIZATION PLAN
Para Fire
Columbia National Wildlife Refuge

APPENDIX II ENVIRONMENTAL COMPLIANCE

- **Environmental Compliance Considerations and Documentation**
- **NEPA Environmental Screening Checklist and Categorical Exclusion**

APPENDIX II - ENVIRONMENTAL COMPLIANCE

ENVIRONMENTAL COMPLIANCE CONSIDERATIONS, DOCUMENTATION, AND CONSULTATIONS

Para Fire Burned Area Emergency Stabilization Plan

A. FEDERAL, STATE, AND PRIVATE LANDS ENVIRONMENTAL COMPLIANCE RESPONSIBILITIES

All projects proposed in the Para Fire Burned Area Emergency Stabilization (ES) Plan that are prescribed, funded, or implemented by Federal agencies on Federal, State, or private lands are subject to compliance with the National Environmental Policy Act (NEPA) in accordance with the guidelines provided by the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); Department of the Interior Manual, Part 516, U.S. Fish and Wildlife Service, NEPA Guidelines, Part 516 DM 6, Appendix 1; and DOE, NEPA Regulations (10 CFR Part 1021). This Appendix documents the BAER Team considerations of NEPA compliance requirements for prescribed and monitoring actions described in this plan for all jurisdictions affected by the Para Fire burned area emergency stabilization.

B. RELATED PLANS AND CUMULATIVE IMPACTS ANALYSIS

The Columbia National Wildlife Refuge Management Plan and Wildland Fire Management Plan: The BAER Team leader reviewed the Columbia National Wildlife Refuge Management Plan (1986) and Fire Management Plan (2001) and Environmental Assessment (2002) and determined that actions proposed in the Para Fire BAER Plan within the boundary of the Columbia National Wildlife refuge are consistent with the management objectives established in the Management Plan. The EA/management plan specifically addresses suppression lines and provides NEPA compliance for suppression line rehabilitation under NEPA.

The EIS/management plan specifically addresses bulldozer lines and provides NEPA compliance for bulldozer line treatment under NEPA.

Cumulative Impact Analysis: Cumulative effects are the environmental impacts resulting from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, both Federal and non-Federal. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The emergency protection and stabilization treatments for areas affected by the Para Fire, as proposed in the Para Fire ES Plan, do not result in an intensity of impact (i.e. major ground disturbance, etc.) that would cumulatively constitute a significant impact on the

quality of the environment. The treatments are consistent with the above jurisdictional management plans and associated environmental compliance documents and categorical exclusions listed below.

C. APPLICABLE AND RELEVANT CATEGORICAL EXCLUSIONS

U.S. Fish and Wildlife Service: The individual actions proposed in this plan for Columbia National Wildlife Refuge are Categorically Excluded from further environmental analysis as provided for in the Department of the Interior Manual Part 516 and U.S. Fish and Wildlife Service, NEPA Guidelines, Part 516 DM 6, Appendix 1. All applicable and relevant Department and Agency Categorical Exclusions are listed below. Department exceptions (516) DM 2.3 do not apply to any of the individual actions proposed. Categorical Exclusion decisions were made with consideration given to the results of required emergency consultations completed by the BAER Team and documented in Section E below.

Applicable Departmental Categorical Exclusions

- 516 DM2 App. 2, 1.6 Non-destructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research and monitoring activities.
- 516 DM 6 App. 4.4 A Operations, maintenance, and replacement of existing facilities (includes road maintenance).
- 516 DM 6 App. 4.4 L(5) Emergency road repairs under 23 U.S.C. 125.
- 516 DM 6 App. 7.4 C(3) Routine maintenance and repairs to non-historic structures, facilities, utilities, grounds and trails.
- 516 DM 6 App. 7.4 C(19) Landscaping and landscape maintenance in previously disturbed or developed areas.

Applicable U.S. Fish and Wildlife Service Categorical Exclusions

- 516 DM 6 App. 1.4B (1) Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources which involve negligible animal mortality of habitat destruction, no introduction of contaminants, or no introduction of organisms not indigenous to the affected ecosystem.
- 516 DM 6 App. 1.4B (3) i The installation of fences.
- 516 DM 6 App. 1.4B (3)iii The planting of seeds or seedlings and other minor revegetation actions.
- 516 DM 6 App. 1.4B (3)v The development of limited access for routine maintenance and management purposes.

- 516 DM 6 App. 1.4B (5) Fire management activities, including prevention and restoration measures, when conducted in accordance with Departmental and Service procedures.
- 516 DM 6 App. 1.4B (6). The reintroduction or supplementation (e.g. stocking) of native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible environmental disturbances are anticipated.

D. STATEMENT OF COMPLIANCE FOR THE PARA BURNED AREA EMERGENCY STABILIZATION PLAN

This section documents consideration given to the requirements of specific environmental laws in the development of the Para Fire BAER Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the Para Fire BAER Plan:

1. National Historic Preservation Act (NHPA). The BAER Team archeologists have initiated necessary consultation with the Washington State Historic Preservation Office (SHPO) and the Yakama, Umatilla, Nez Perce, and Wanapum Tribes regarding treatments proposed in the Para Fire BAER Plan.
2. Executive Order 11988. Floodplain Management. Treatments and actions proposed within the 100-year floodplain will “minimize the impact of floods on human safety, health and welfare, and (will) restore and preserve the natural and beneficial values served by floodplains.”
3. Executive Order 11990. Protection of Wetlands. Treatments and actions proposed within wetland areas will “minimize the destruction, loss or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands”.
4. Executive Order 12372. Intergovernmental Review. Coordination and consultation is ongoing with affected Tribes, Federal, State, and local agencies. A copy of the BAER Plan will be disseminated to all affected agencies.
5. Executive Order 12892. Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. All Federal actions must address and identify, as appropriate, disproportionately high and adverse human health or low-income populations, and Indian Tribes in the United States. The BAER Team Environmental Protection Specialist has determined that the actions proposed in this plan will result in no adverse human health or environmental effects for minority or low-income populations and Indian Tribes.
6. Endangered Species Act. The BAER Team wildlife biologist and vegetation specialists have consulted with the Service and Washington Department of Fish and Wildlife regarding actions proposed in this plan and potential affects on Federally and State listed species. Individual agencies are responsible for continued consultations during plan implementation.
7. Secretarial Order 3127. There are no known contaminated sites on other jurisdictions affected by the Para Fire.

8. Clean Water Act. The BAER Team Environmental Protection Specialist has determined that treatments prescribed in the Para Fire burned area will have no impacts to water quality within wetland areas. The wetland area within the fire perimeter is artificial in nature, arising from redirections and impoundments from Crab Creek. The water flowing through the wetland does eventually return to Crab Creek; however, treatments proposed within the wetlands would have no impact to water returning to the river. Impacts would not differ significantly from routine water use practices for the area. Long-term, treatments proposed in this plan would be expected to have a beneficial impact to water quality through stabilization of ash and soils, and treatment of invasive species within the Para Fire burned area.

9. Clean Air Act. Federal Ambient Air Quality Primary and Secondary Standards are provided by the National Ambient Air Quality Standards, as established by the U.S. Environmental Protection Agency (EPA) (Clean Air Act, 42 U.S.C. 7470, et seq., as amended). The BAER Team Environmental Protection Specialist has determined that treatments prescribed in the Para Fire burned area will have short-term minor impacts to air quality that would not differ significantly from routine land use practices for the area. Long-term, treatments proposed in this plan would be expected to have a beneficial impact to air quality through stabilization of ash and soils within the Para Fire burned area.

E. CONSULTATIONS

USFWS, Upper Columbia Fish and Wildlife Ecological Services Office, Spokane, WA
<http://fws.gov/easternwashington/>

NEPA Environmental Screening Checklist and Categorical Exclusion

NEPA Checklist: If any of the following exception applies, the ESR Plan cannot be Categorically Excluded and an Environmental Assessment (EA) is required.

(Yes) (No)

- ☐ () ☒ (X) Adversely affect Public Health and Safety
- ☐ () ☒ (X) Adversely affect historic or cultural resources, wilderness, wild and scenic rivers aquifers, prime farmlands, wetlands, floodplains, ecologically critical areas, or Natural Landmarks.
- ☐ () ☒ (X) Have highly controversial environmental effects.
- ☐ () ☒ (X) Have highly uncertain environmental effects or involve unique or unknown environmental risks.
- ☐ () ☒ (X) Establish a precedent resulting in significant environmental effects.
- ☐ () ☒ (X) Relates to other actions with individually insignificant but cumulatively significant environmental effects.
- ☐ () ☒ (X) Adversely effects properties listed or eligible for listing in the National Register of Historic Places
- ☐ () ☒ (X) Adversely affect a species listed or proposed to be listed as Threatened or Endangered.
- ☐ () ☒ (X) Threaten to violate any laws or requirements imposed for the "protection of the environment" such as Executive Order 1 1 988 (Floodplain Management) or Executive Order 1 1 990 (Protection of Wetlands).

National Historic Preservation Act

Ground Disturbance:

- ☐ () None
- ☒ (X) Ground disturbance did occur and an archeological assessment/inventory will be conducted.

A NHPA Clearance Form:

- ☐ () Is required because the project may have affected a site that is eligible or on the national register. The clearance form is attached. SHPO has been consulted under Section 106 (see Cultural Resource Assessment, Appendix I).
- ☒ (X) Is not required because the ESR Plan has no potential to affect cultural resources (initial of cultural resource specialist).

Other Requirements

(Yes) (No)

- (X) () Does the ESR Plan have potential to affect any Native American uses? If so, consultation with affiliated tribes is needed.
- (X) () Are any toxic chemicals, including pesticides or treated wood, proposed for use? If so, local agency integrated pest management specialists must be consulted.

I have reviewed the proposals in the Para Fire Burned Area Emergency Stabilization Plan in accordance with the criteria above and have determined that the proposed actions would not involve any significant environmental effect. Therefore it is categorically excluded from further environmental (NEPA) review and documentation. ESR Team technical specialists have completed necessary coordination and consultation to insure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State and local environment review requirements.

ES Team Environmental Protection Specialist

Date

Project Leader, Columbia National Wildlife Refuge

Date

BURNED AREA EMERGENCY STABILIZATION PLAN
Para Fire
Columbia National Wildlife Refuge

**APPENDIX III PHOTO DOCUMENTATION (Attached as a separate file
due to file size)**

- Vegetation Resources Issues
- Public Use Issues
- Wildlife Resource Issues
- Suppression Impacts

Photo 1 – Wood's rose and Coyote willows killed by fire. Green is returning bulrush and cattail.

Photo 2 – Coyote and Pacific willow stumps surrounded by cattails and bulrush.

Photo 3 – Coyote and Pacific willow killed by fire.

Photo 4 – Greasewood and native grasses killed by fire.

Photo 5 – Wyoming big sagebrush killed by fire.

Photo 6 – Surviving Kochia infestation along west boundary of fire.

Photo 7 – Canada thistle reappearing in burned area within 10 days of fire.

Photo 8 – Russian olive growing at edge of fire area.

Photo 9 – Burned out willows and Golden currant, surviving Russian olive, and adjacent Kochia field, with the Bluebird campground visible in the background.

Photo 10 – Burned out fence post of boundary fence.

Photo 11 – Burned and broken boundary fence.

Photo 12 – One of the possible Washington ground squirrel holes found within the burned area.

Photo 13 – Immediately adjacent Long-billed curlew breeding habitat. A curlew was observed doing display flights with territorial calling over this habitat during the post-fire reconnaissance.

Photo 14 – Mule deer tracks made post-fire. Deer passed through area without stopping.

Photo 15 – Wheel tracks from fire fighting efforts.

Photo 16 – Wheel tracks and deep ruts in soggy ground around fire perimeter created by fire fighting efforts.

Photo 17 – Wheel tracks and compressed soils around fire perimeter created by fire fighting efforts.

Photo 18 – Para Fire overview.

BURNED AREA EMERGENCY STABILIZATION PLAN
Para Fire
Columbia National Wildlife Refuge

APPENDIX IV SUPPORTING DOCUMENTATION

- Section 7 Species List
- Cost/Risk Analysis

ADAMS COUNTY

Updated 3/22/2007

LISTED

Endangered

Pygmy rabbit (*Brachylagus idahoensis*) – Columbia Basin distinct population segment

Threatened

Bald eagle (*Haliaeetus leucocephalus*)

Spiranthes diluvialis (Ute ladies'-tresses), plant

CANDIDATE

Washington ground squirrel (*Spermophilus washingtoni*)

SPECIES OF CONCERN

Animals

Burrowing owl (*Athene cuniculari*)

Ferruginous hawk (*Buteo regalis*)

Loggerhead shrike (*Lanius ludovicianus*)

Long-eared myotis (*Myotis evotis*)

Northern leopard frog (*Rana pipiens*)

Pallid Townsend's big-eared bat (*Corynorhinus townsendii pallenscens*)

Sagebrush lizard (*Sceloporus graciosus*)

Vascular Plants

Polemonium pectinatum (Washington polemonium)

GRANT COUNTY

Updated 3/22/2007

LISTED

Endangered

Pygmy rabbit (*Brachylagus idahoensis*) – Columbia Basin distinct population segment

Threatened

Bald eagle (*Haliaeetus leucocephalus*)

Bull trout (*Salvelinus confluentus*) – Columbia River distinct population segment

Spiranthes diluvialis (Ute ladies'-tresses), plant

CANDIDATE

Greater sage grouse (*Centrocercus urophasianus*) – Columbia Basin distinct population segment

Washington ground squirrel (*Spermophilus washingtoni*)

Artemisia campestris ssp. *borealis* var. *wormskioldii* (Northern wormwood), plant

SPECIES OF CONCERN

Animals

Burrowing owl (*Athene cunicularia*)

California floater (*Anodonta californiensis*), mussel

Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*)

Ferruginous hawk (*Buteo regalis*)

Giant Columbia spire snail (*Fluminicola columbiana*)

Kincaid meadow vole (*Microtus pennsylvanicus kincaidi*)

Loggerhead shrike (*Lanius ludovicianus*)

Long-eared myotis (*Myotis evotis*)

Northern goshawk (*Accipiter gentilis*)

Northern leopard frog (*Rana pipiens*)

Pacific lamprey (*Lampetra tridentata*)

Pallid Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)

Redband trout (*Oncorhynchus mykiss*)

River lamprey (*Lampetra ayresi*)

Sagebrush lizard (*Sceloporus graciosus*)

Western brook lamprey (*Lampetra richardsoni*)

Vascular Plants

Cryptantha leucophaea (Gray cryptantha)

Lomatium tuberosum (Hoover's desert-parsley)

Oxytropis campestris var. *wanapum* (Wanapum crazyweed)

**Para Fire
Cost/Risk Analysis – Vegetation**

PART 1. TREATMENT COST

Treatments	Cost
Non-native Invasive Species Control – Integrated Pest Management	\$6,566
Non-native Invasive Species Control – Native Plantings	\$17,722
Exclusion Fences	\$3,995
Effectiveness Monitoring	\$2,890
Total	\$31,173

**PART 2. PROBABILITY OF STABILIZATION TREATMENTS
SUCCESSFULLY MEETING ES OBJECTIVES**

Treatments	Units	%
Non-native Invasive Species Control- Integrated Pest Management	8.2	80
Non-native Invasive Species Control – Native Plantings	8.2	95
Exclusion Fences	1144	95
Effectiveness Monitoring	8.2	95

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Medium	High
Lives		X		
Residential & Commercial Property			X	
Wildlife				X
Cultural Resources			X	

Proposed Action – Treatments Successfully Implemented (check one)

Resource Value	None	Low	Medium	High
Lives	X			
Residential & Commercial Property		X		
Wildlife			X	
Cultural Resources			X	

PART 3. SUMMARY

1. Are the risks to cultural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [☒] No [☐] Rational for answer:

Non-Native Invasive Species Control. The detection, control and monitoring of non-native invasive species in burned areas and the prevention of the expansion of known populations into newly disturbed areas will present no risk to cultural resources and will prevent the spread of non-native invasive species to private property.

No Action Yes [☐] No [☒] Rational for answer:

No the risks to cultural resources and private property are not acceptable. Non-native invasive plants and unacceptable soil erosion could significantly impact the Refuge's resources and will likely affect private property.

Alternative(s) Yes [☐] No [☐] Rationale for answer: **None**

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their cost?

Proposed Action Yes [☒] No [☐] Rational for answer:

Protection of sensitive shrub-steppe habitat and obligate wildlife species will not only benefit these resources but will improve their condition as regrowth occurs.

No Action Yes [☐] No [☒] Rational for answer:

Failure to protect and stabilize this area would impact nationally significant resources. Failure to prevent the spread of non-native plants will increase the long term costs of managing these lands, increase fire risks, reduce critical habitat for many wildlife species, reduce potential reintroduction sites for listed species, and will likely adversely affect private property.

Alternative(s): Yes [☐] No [☐] Rationale for answer: **None**

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

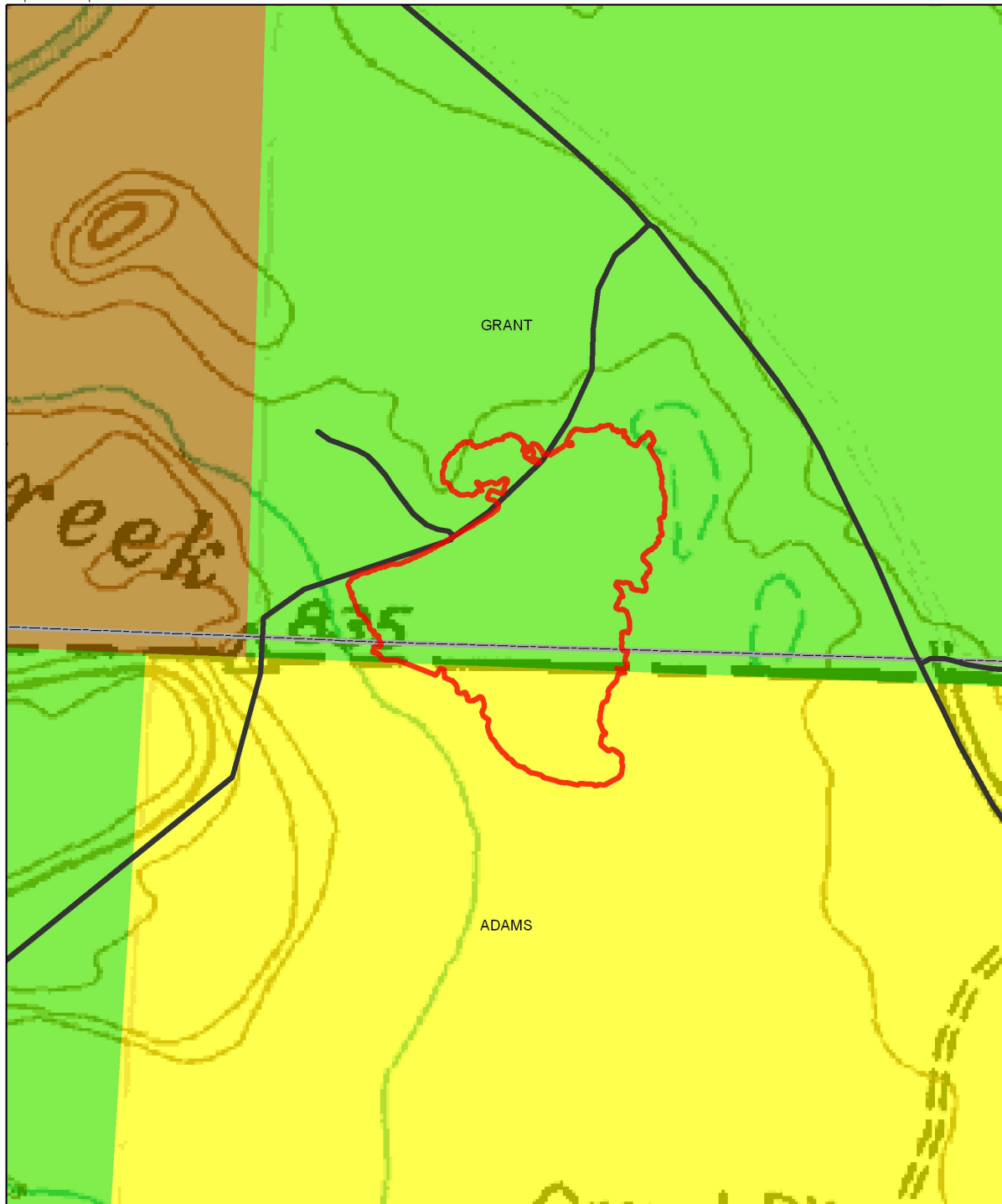
Proposed Action Yes [☒] No [☐] Rationale for answer:

It is highly likely that the no action alternative would result in substantial damage to nationally significant cultural and biological resources of the Columbia National Wildlife Refuge. The proposed actions have a high probability of protecting soil, vegetation, and wildlife resources currently at risk of degradation. The proposed action would achieve the emergency stabilization objectives established in DOI policy and therefore are recommended for implementation.

BURNED AREA EMERGENCY STABILIZATION PLAN
Para Fire
Columbia National Wildlife Refuge

APPENDIX V MAPS

- Fire location and ownership ("Land Status")
- Soils
- Sensitive Wildlife
- Proposed Stabilization Treatments ("Proposed Treatments")



Para Fire - Land Status
7 April 2007
(burned area ca. 10.4 acres)

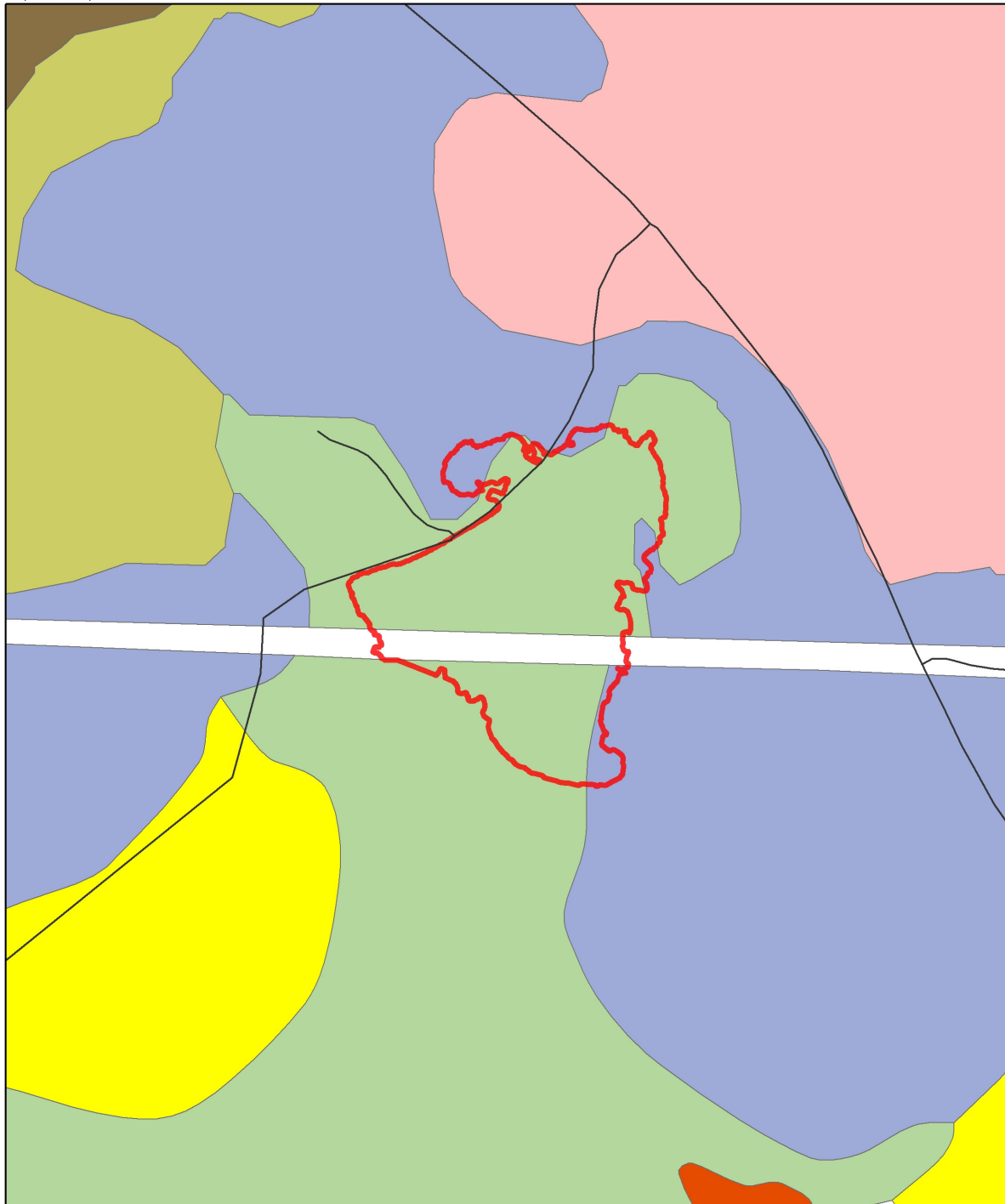
0 0.02 0.04 0.06 0.08 0.1 0.12 Miles



Refuge Land Status

- inholding
- owned
- lease

- Para Fire boundary
- Main_Refuge_Roads
- County Line



Para Fire - Soils
7 April 2007
(burned area ca. 10.4 acres)

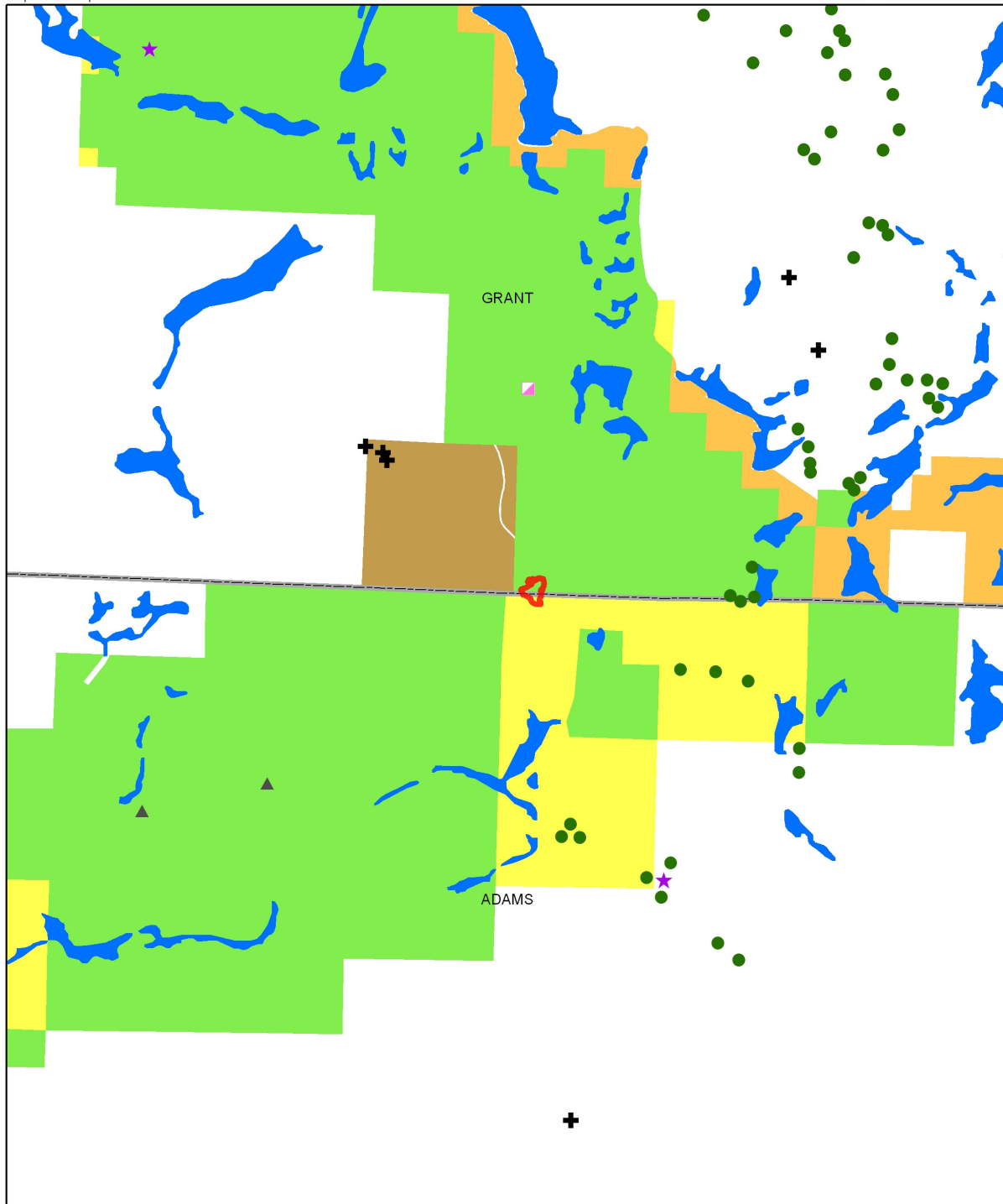
0 0.02 0.04 0.06 0.08 0.1 0.12 Miles



- | | |
|--|------------------------|
| Umapine Silt Loam | Ephrata Sandy Loam |
| Prosser-Starbuck-Bakeoven Rock Outcrop Complex | Quincy Loamy Fine Sand |
| Schawana Complex | Para Fire boundary |
| Starbuck Very Fine Sandy Loam | Main_Refuge_Roads |
| Wanser-Quincy Fine Sands | |

Map Date: 20 April 2007

File Name: Para-SensitiveWildlife.mxd

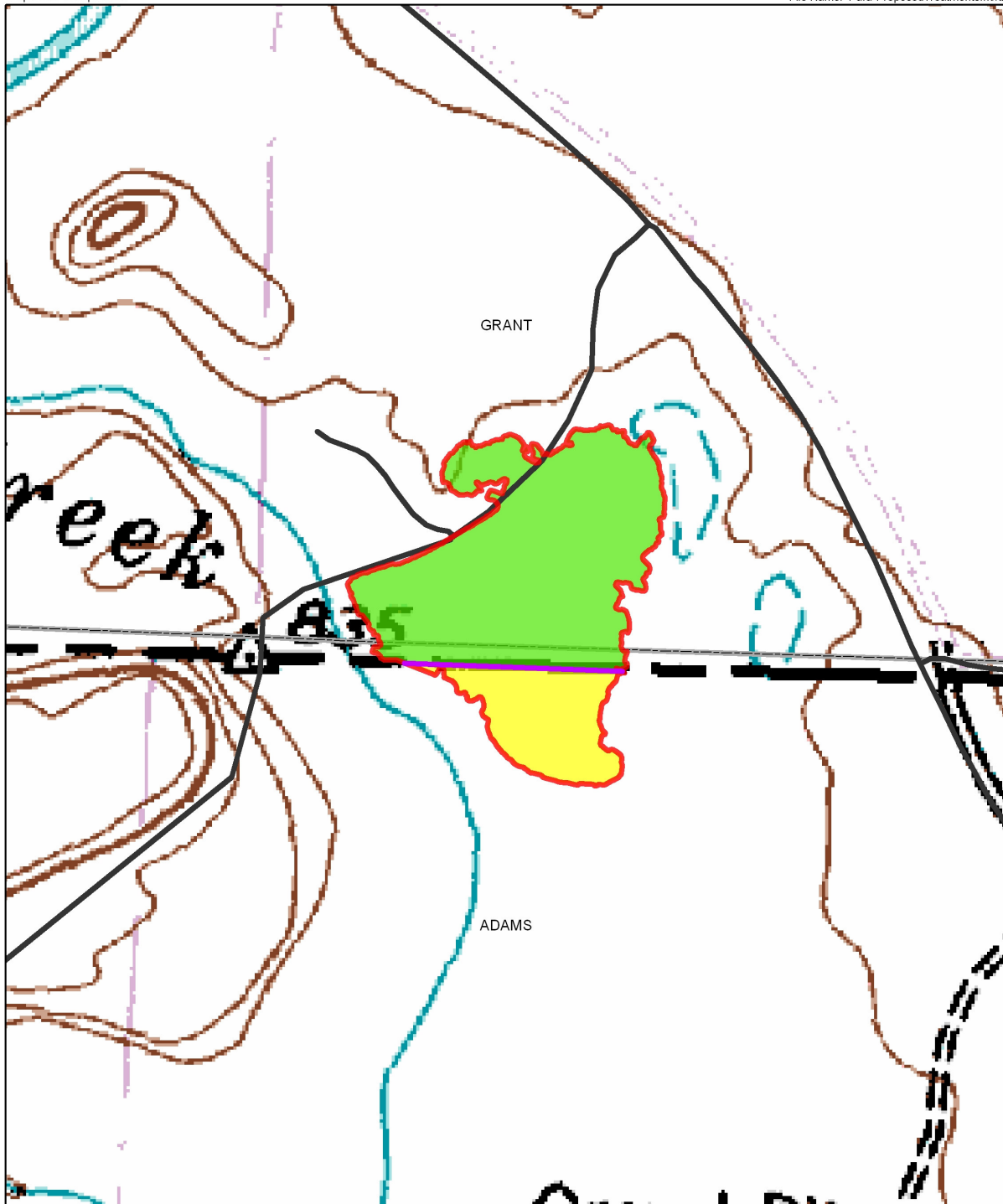


Para Fire - Sensitive Wildlife **7 April 2007** *(burned area ca. 10.4 acres)*

0 0.5 1 1.5 2 Miles





- ★ BURROWING OWL
- ✚ FERRUGINOUS HAWK
- ▲ LONG-BILLED CURLEW
- ◻ NIGHT SNAKE
- WASHINGTON GROUND SQUIRREL
- Waterbodies
- Para Fire boundary
- County Line
- Refuge - owned
- Refuge - inholding
- Refuge - lease
- Refuge - secondary



Para Fire - Proposed Treatments **7 April 2007** *(burned area ca. 10.4 acres)*

0 0.05 0.1 0.15 0.2 Miles

-  Para Fire boundary
-  Damaged Fence
-  Non-native Invasive Species Control
-  Private Land (no treatment)
-  Main_Refuge_Roads
-  County Line

